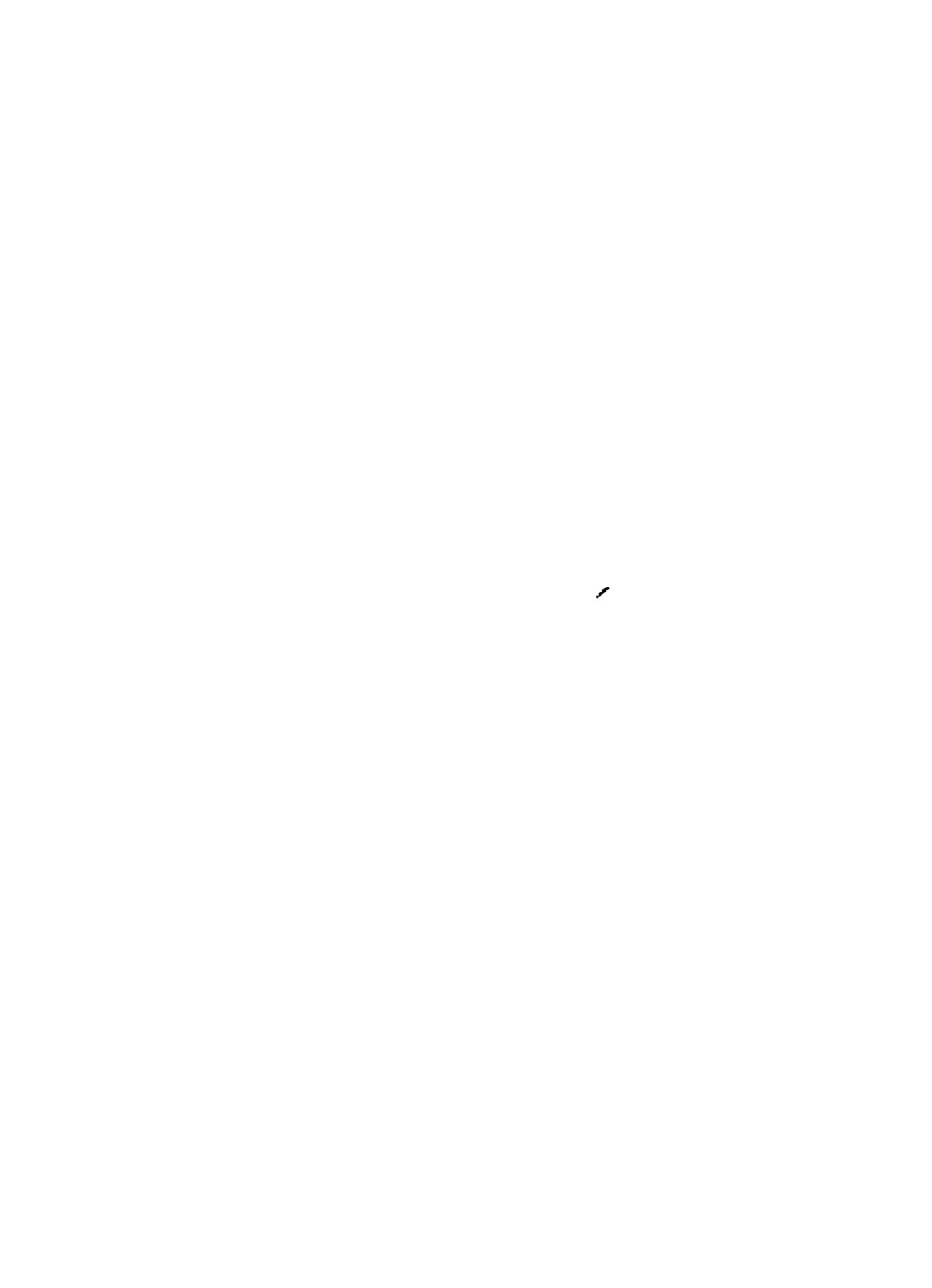


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BEAUTIFUL FLOWERS

AND HOW TO GROW THEM





LADY GAY ROSE
By E. Fortescue Brickdale

BEAUTIFUL FLOWERS

AND HOW TO GROW THEM

BY

HORACE J. WRIGHT & WALTER P. WRIGHT

ILLUSTRATED WITH 100 PLATES IN FULL COLOURS FROM PAINTINGS
BY BEATRICE PARSONS, ELEANOR FORTESCUE BRICKDALE,
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BEAUTIFUL FLOWERS

ROSES

THERE is a charm about a beautiful Rose garden which appeals irresistibly to every lover of flowers. It is not necessary to win a prize at a Rose show to enjoy Roses when they are used in free, informal, natural ways. There is a wide gulf between exhibiting and gardening. The exhibitor of Roses does not keep beautiful garden effects constantly before him, and plant and prune in such a way as to form pleasing garden pictures; he aims at producing a limited number of flowers of a particular type. For this reason people who love Roses must not allow themselves to be unduly influenced by what they see and hear at shows. They must learn about beautiful garden Roses—what they are, and how to manage them in order to get lovely garden scenes, together with abundance of flowers for bowls and vases.

There should be nothing stiff, stilted, and formal about Roses, whether in the growing of them, the utilisation of them, or the writing about them. We should look upon them as cheerful, delightful, affectionate companions. To put the trees in stiff rows, grow them on a level, and prune them back to mere stumps, like a blackthorn hedge, is to rob them of all chance of showing whether they possess natural beauty. And to write of Roses as though they were mere automata, devoid of all sentiment, of all power of appeal to our finest feelings, is to put them on the same plane as mangold wurzels.

Beauty creates beauty. Who can look on a picture of a beautiful

garden without feeling an impulse to grow flowers—not merely to put them into the ground, but to arrange them in such a way that they form harmonies of form and colour? That impulse comes to the meanest of human beings, and it proves two things: the first, that poor, wayward humanity is capable of being swayed by emotions which make for peace and beauty; the second, that flowers have the power of awakening those dormant feelings. A garden, then, becomes more than a mere minister to the grosser appetites. It is not simply an instrument of pleasure.

The Rose of our love is not the Rose of the show tent, but of the flower-bed, arch, pillar, and pergola. It is the Rose that swings golden, and pink, and crimson clusters lightly in the summer breezes. It is the Rose of the *Rubáiyát* of Omar Khayyam:

“Look to the Rose that blows about us, Lo,
Laughing, she says, into the world I blow:
At once the silken tassel of my purse
Tear, and its Treasure on the garden throw.”

It is the Rose of Shakespeare (Henry VI.):

“Then will I raise aloft the milk-white Rose
With whose sweet smell the air shall be perfumed.”

It is the Rose of Dunbar, the Scottish poet, who wrote, long years before Shakespeare was born:

“Nor hold none other flower in sic dainty
As the fresh Rose of colour red and white;
For if thou dost, hurt is thine honesty,
Considering that no flower is so perfite,
So full of virtue, pleasaunce, and delight,
So full of blissful, angelic beauty,
Imperial birth, honour and dignity.”

We will learn a little about the most beautiful types of Roses, and further, how to use them in the ways that Nature teaches.

We read of Perpetual Roses, Tea Roses, Hybrid Tea Roses, Damask Roses, China Roses, Moss Roses, and Monthly Roses.

But even these are not all, for we find a reference to the Austrian brier, the Japanese Rose, the Provence Rose, the Macartney Rose, the Ayrshire Rose, and the Evergreen Rose. Then we come to others more forbidding, because botanical—*Rosa multiflora*, *Rosa Wichuraiana*, and so forth.

There are folk who like to know something of the different classes, and particularly of the Roses of great poets such as Shakespeare. The Red Rose of the Bard, and his Provençal Rose, are supposed to be the same, our Cabbage Rose (*Rosa centifolia* of botanists).

His White Rose is supposed to have been a double form of the wild white Rose (*Rosa arvensis*).

Warwick's prophecy in connection with the scene in the Temple gardens, where the flowers were plucked as party badges, was fulfilled:

"This brawl to-day
Grown to this faction, in the Temple garden,
Shall send, between the Red Rose and the White,
A thousand souls to death and deadly night."

Sir John Mandeville's description of Damascus: "Non other cytee is not lycke in comparison to it, of fayre Gardens, and of fayre desportes," prepares us for the assurance that Shakespeare's Damask Rose (*Rosa Damascena*) came from Damascus. We may well view this Rose with double favour, for it undoubtedly served as one of the several parents of the greatest of all modern classes of Rose—the Hybrid Perpetual.

The Musk Rose of Shakespeare is, of course, *Rosa moschata*, which Hakluyt tells us in his *Voiages* was "procured out of Italy," but is not confined to that country, as it has been found native on the opposite side of the Mediterranean. The reader will recall Bacon's glowing praise of this old flower: "That which above all others yields the sweetest smell in the air is the Violet, next to that is the Musk Rose."

The parti-coloured Rose which Shakespeare had in mind when he wrote in the Sonnets:

“The Roses fearfully in thorns did stand,
One blushing shame, another white despair;
A third nor red nor white, had stol’n of both
And to his robbery had annexed thy breath,”

must have been the York and Lancaster Rose, which most authorities consider to be a variety of the Damask Rose, although the Gloria Mundi Rose, which is also commonly grown under the name of York and Lancaster, is a variety of *Rosa Gallica*.

Shakespeare's eglantine is the Sweet Brier (*Rosa rubiginosa*). If he had lived to-day he would have loved the exquisite hybrid Briars raised by the late Lord Penzance.

So much for the Shakespearean garland of beautiful Roses, and now a word as to the various sections. The largest class is the Hybrid Perpetual. Several species have been used as parents for these, notably the China or Monthly (*Rosa indica*), the Bourbon (*Rosa indica borbonica*), and the Damask (*Rosa Damascena*). The term perpetual is used in connection with them because they bloom twice or more in the year.

The next largest is the Tea, so called because the perfume of the flowers resembles that of the “cup that cheers but not inebriates.” They also spring from a form of the China Rose (*Rosa indica odorata*).

The third largest class is the Hybrid Tea, and it has grown rapidly during recent years. The varieties are cross-breds, probably between Hybrid Perpetuals and Teas.

The Noisettes are not so numerous as the three foregoing classes, but the section is important, because it includes several beautiful climbing Roses which bear their flowers in clusters, notably Maréchal Niel, William Allen Richardson, L'Idéal, and Alister Stella Gray. The origin of the class must be sought in hybridisation between the China and the Musk Roses.



TEA ROSES, CHIMNEY CAMPANULAS (*Campanula medium*) AND SNAPDRAGONS (*Antirrhinum*)
By Hugh Norris

The Moss Rose is a small but interesting section, derived from a form of the Cabbage Rose (*Rosa centifolia muscosa*).

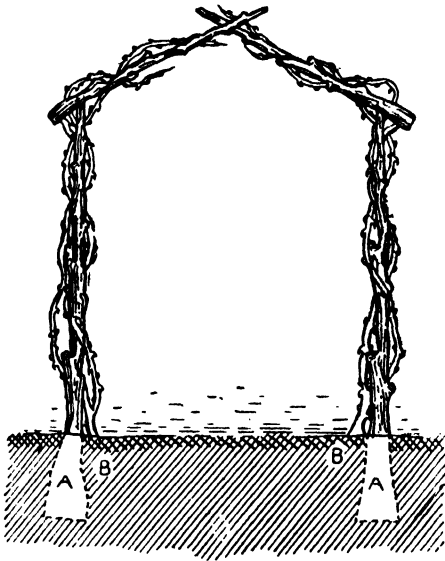
Of the remaining classes the most important is the Polyantha Rose, which springs from *Rosa multiflora* ("many-flowered"). It grew rapidly in numbers and value during the closing years of the last century, and in view of the fact that it embraces the great Crimson Rambler and its sister varieties, as well as the brilliant Leuchstern, it is questionable whether it is not at least as valuable for garden decoration as the numerically stronger Hybrid Perpetuals and Teas. The Polyantha Roses have special value for the formation of charming garden pictures, as they are so suitable for arches and pillars.

By the same token there is another class, hitherto of little note, which is now becoming valuable, and that is the Wichuraiana Rose. The Americans have obtained some beautiful hybrids from it, notably Dorothy Perkins, Lady Gay, and Hiawatha, and there can be little doubt that it will increase in numbers and value every year.

This passing dip into the classes and derivations of Roses will show that there is much of interest in the origin of our beautiful modern flowers. But it will also show that the average flower-gardener would be ill-advised to charge his mind with the task of tracing the great classes back to their source. The latter is a duty for the botanist, and it is not an enviable one, because there has been an immense amount of crossing and inter-crossing, with no accurate records to guide the inquirer. Those who love Roses for their garden beauty will act wisely by contenting themselves with the outline of Rose history here given, and proceed to consider how they can best utilise the magnificent material which awaits their attention.

Arches, Pergolas, and Pillars.—Our first requirement is an arch, or a series of arches. Gardens are often divided into sections, one of which may be a flower garden, a second a tennis lawn, and a third a kitchen garden. It is a charming idea to make the

division between a flower garden and a lawn consist of a series of arches, connected by side pieces, thus forming a pergola. And there are no more beautiful plants for covering pergolas than climbing Roses. The principal poles should be at least nine feet long, so as to allow two and a half feet below ground and six and a half feet above it. They may consist of larch or oak. The former is not so durable as the latter, but if the part that



RUSTIC ARCH FOR ROSES

A, A, posts charred and firmly fixed in the ground ;
B, B, prepared borders for the roots.

is to go below ground is charred, soaked in petroleum, or barked and tarred, the poles will last several years. Larch has two great advantages—straightness and cheapness. These main uprights should be set eight feet apart, and have the earth well rammed round the base in order that the framework of the pergola may be rigid. The top and side pieces may be much lighter.

Ready-made arches, both of rustic timber and metal, can be purchased at moderate prices, and these will be admirable in suitable places, such as over divisions of garden walks.

The suburban gardener who has not room for a pergola will not despise these charming features.

Rose pillars are very beautiful, and they are quite inexpensive. Let the reader first imagine a stiff ribbon border, with the plants all on a level ; and then imagine a border of various kinds of plants, informal and irregular, with Rose pillars rising here and there. How much more graceful and pleasing is the latter than the former !

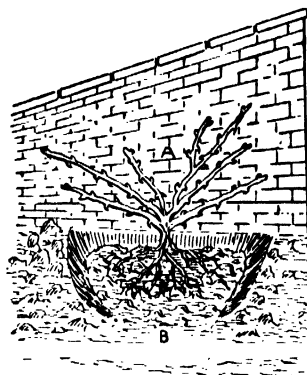
Near the arches or pillars, as the case may be, groups of beautiful plants like Lilies, Campanulas, blue perennial Larkspurs,

Paeonies, Phloxes, and Hollyhocks can be planted. This plan has been followed in one of the charming coloured plates which accompany these notes.

Beds of Roses.—If possible we must find room for one or two beds of Roses. Of course we will contrive a full-fledged Rose garden, with arbours, pillars, arches, and beds (see coloured plate) if we have space and means. But failing that we will have a Rose bed. It shall not be filled with stiff, straight standards, or with hard-pruned dwarfs, but with bush Roses of vigorous growth and free-flowering character, that will make handsome objects in themselves. Standard Roses are not favoured nowadays, except by those who grow Tea Roses for exhibition. And lovers of beautiful Rose gardens will not trouble about weak, puny growers, which need pruning to stumps every year; they will select strong sorts which form real bushes without much cutting, and still bear handsome flowers. In one of the coloured plates it will be seen that the splendid variety La France has been utilised in beds in this way. The bushes are not small things like Pinks, but great, glorious masses. There are many good varieties suitable for this and other purposes, as we shall see when we come to our selections.

Whether we grow Roses on or in arches, pergolas, walls (for we must not forget the dwelling-house), or beds we must give them abundance of good food if they are to produce those generous masses of bloom which we want. Starvation will not do, half-measures will not do. We must have strong, healthy plants, growing in rich soil.

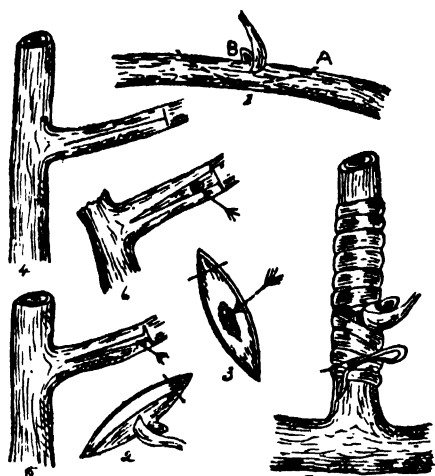
Budding.—How shall we get our plants? People who are beginning to take an interest in Roses, and are anxious to learn



PLANTING ROSES AGAINST A WALL
A, centre of plant kept open; B, the roots spread out in a wide shallow basin before covering in.

about them, read about different kinds of "stocks," and inquiry reveals the fact, unknown to them hitherto, although familiar enough to gardeners, that Roses are not, as a rule, propagated by seeds, or cuttings, or division, but by putting growth buds of them on the stems of allied plants, such as Briers, or Manettis. The beginner will ask whether he should do this, or whether he should buy plants which have been formed already. There is no doubt as to his course, he should buy plants; partly because there

is a difficulty in getting stocks, and partly because budding needs practice.



BUDDING ROSES

No. 1, The dotted line, A, shows how to cut out the bud, B; No. 2, the bud severed from the branch; No. 3, arrow points to hard wood to be removed; No. 4, bark of branch cut lengthwise and across; No. 5, arrow points to bark duly raised; No. 6, arrow points to the bud inserted; No. 7, the bud tied in position.

After the amateur has gained experience of Roses he may very well try his hand at budding. He will have to get briers out of the hedge-rows in autumn, and plant them in his garden. They need only be straight stems like walking-sticks, with a stump of root. In spring they will push shoots, which by the end of July, or from that to the middle of August, will have as thick as lead-pencils, and a foot or more long. At the base of each shoot he may cut a slit through the

bark, about an inch and a half long, and terminating in a cross-cut. He will then take a growing shoot of the Rose which he wishes to propagate, and cut off a thin slice of wood and bark a little more than an inch long, the centre of which comes underneath a leaf. The reason for this is that at the base of each leaf there is a dormant bud, which is the future plant. After trimming the leaf back to its footstalk, and removing the wood from the bark without displacing the bud or injuring its base, the edges of the



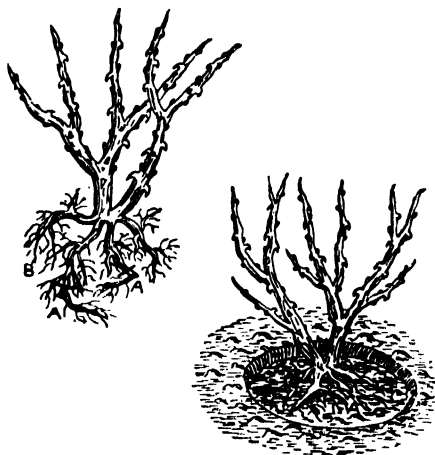
BED OF LA FRANCE ROSES
By Beatrice Parsons

cut made in the stems of the brier should be raised, and the piece slipped in at once, before it has time to get dry. It must be tied in gently but firmly with worsted or raffia-tape. If the bud remain fresh and green at the end of a fortnight it is safe, although it may not grow until the following spring. If it shrivel it will not grow, and another had better be tried. In order to provide for this it is wise to reserve one or two shoots on each brier at the first budding.

Soil and Planting.—Now let us consider our bought plants. We shall probably procure them in the autumn, and directly the order has been sent off we must prepare the ground. Those who have a choice between light and heavy soil had better choose the latter. Roses like what gardeners call “holding” soil, such as strong loam or clay. Light, sandy, gravelly or chalky land is not so good. The ground ought

to be treated in this way: (1) Mark a strip two feet wide right across one end of the bed; (2) take out the soil to a foot deep and wheel it to the other end of the bed; (3) spread a coat of manure in the trench and dig it into the subsoil; (4) fill up the trench with the topsoil from another two-feet strip; (5) so proceed until the end of the bed is reached; and finally (6) fill up the end trench with the loose soil that came from the first strip. This greatly enriches and deepens the ground. Allow the soil a week or two to settle down, and then plant the Roses, not deeply, but work the soil very firmly about the roots.

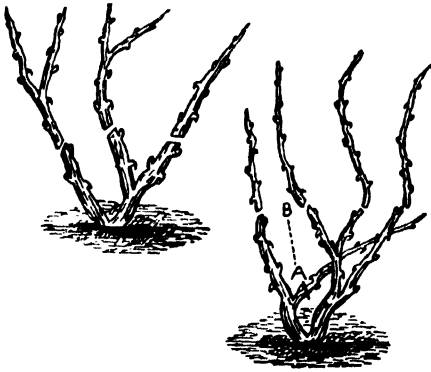
Pruning.—As regards newly planted dwarf or standard Roses, it is generally agreed by experienced cultivators that the branches are best pruned back to three or four buds about the end of March;



PLANTING ROSES

Left-hand figure.—A, A, bruised roots to be cut off; B, fibrous roots to be preserved.
Right-hand figure.—Wide, shallow hole with the roots well spread out.

fresh shoots soon break from the short stumps left. Experts, however, differ as to whether climbing Roses should be cut back



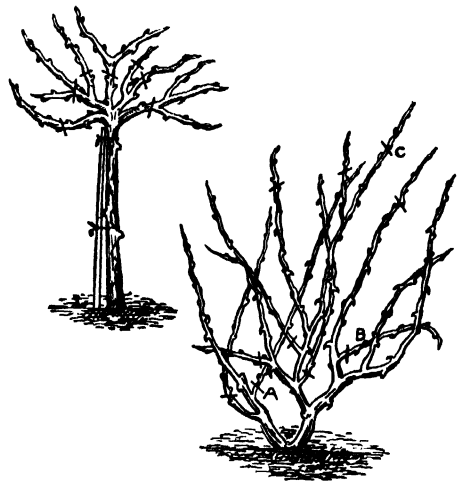
BUSH ROSES

The left-hand figure shows how to prune a dwarf Hybrid Perpetual, and the right-hand figure how to prune a Hybrid Tea. Cross branches should be cut hard back, as shown at A, then the basal buds will grow strongly in the direction shown by the dotted lines B, and strengthen the tree.

in the same way. Some advocate that the long canes should be cut close back to the ground in the spring, and allowed to throw up entirely new shoots from the base. Others declare that this is not necessary. As a rule, amateurs dislike cutting Roses back, much less climbing Roses, and are only too glad to be guided by the expert who recommends non-shortening. The present writers are in favour of non-shortening where the Roses are planted in rich, deep soil; but if they are to go into

shallow soil, above gravel or chalk, cutting back must be practised.

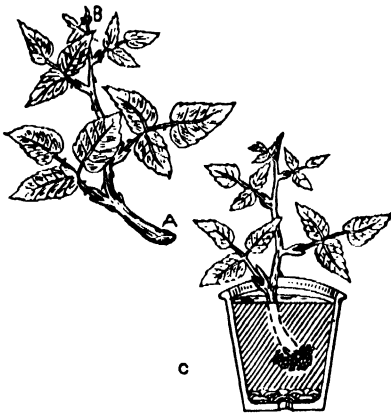
As regards general pruning—that is, the treatment of the plants in future years when well established—growers may be advised to proceed on the following lines: (1) *Dwarfs*. Prune varieties which form summer shoots of about the thickness of lead-pencils back to within six buds of the base every spring, but allow varieties which form shoots as thick as the finger to extend two or three feet, and merely trim the tips, and the weak breastwood which forms on the main stems. (2) *Standards*. The great majority of the Roses which are grown as standards form summer shoots (



PRUNING STANDARD AND CLIMBING ROSES

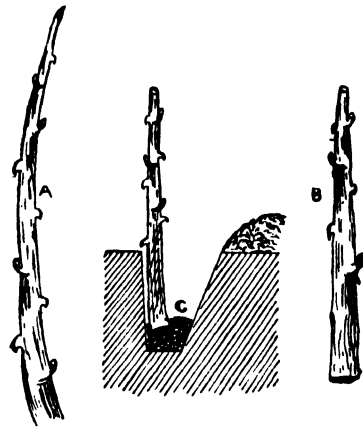
Left-hand figure.—In pruning a standard Rose the branches should be cut back to the dark line. Right-hand figure.—Pruning a climbing Rose. A and B, weakly and cross branches cut off. C, unripe tips of other branches cut off.

about the thickness of a lead-pencil, and may be cut back to four buds about the end of March each year. (3) *Climbers with long canes*. Climbers which form long, strong, upright canes, such as Crimson Rambler and Carmine Pillar, do not need much pruning. On no account must the vigorous rods be cut back to the ground. When, however, considerable numbers of canes have formed, and are getting thick and tangled, the old ones may be cut right out to give more room for the young ones which have pushed from



PROPAGATING ROSES FROM SPRING CUTTINGS

A, cutting with a heel, severed beneath a joint; B, point of cutting retained; C, the cutting inserted.



PROPAGATING ROSES FROM AUTUMN CUTTINGS

A, suitable shoot; B, cutting prepared for insertion; C, cutting inserted, with its base on a layer of sand.

the base. (4) *Climbers with much side wood*. There are several valuable climbing Roses, such as Gloire de Dijon, Alister Stella Gray, William Allen Richardson, and Madame Alfred Carrière, which throw many vigorous young side canes from their main rods; and these are particularly valuable for walls, because they cover a considerable surface in a short time. They do not need cutting back when established, but will be the better for an annual trimming, thinning out tangled shoots.

Special Selections.—We may now give a few selections of varieties for various purposes. These are carefully chosen to unite vigour of growth with bright colours and free-blooming. Many,

too, are perfumed, but the grower will not find such fragrance in all the pillar Roses as in the old Cabbage Rose.

SELECT ROSES FOR ARCHES, PERGOLAS, AND PILLARS

Ards Rover, crimson.
Carmine Pillar, carmine.
Crimson Rambler, crimson.
Dorothy Perkins, pink.
Félicité Perpétue, white.

Euphrosyne, pink.
Leuchstern, carmine.
Mrs. F. W. Flight, pink.
Penzance Brier Lucy Bertram,
 red.

SELECT ROSES FOR WALLS

Alister Stella Gray, yellow.
Gloire de Dijon, yellow.
Longworth Rambler, crimson.

Madame Alfred Carrière, white.
Reine Marie Henriette, red.
Wm. Allen Richardson, copper.

SELECT ROSES FOR BEDS

Anna Olivier, white or buff.
Antoine Rivoire, cream.
Caroline Testout, pink.
Frau Karl Druschki, white.
Grüss an Teplitz, crimson.
Gustave Nabonnand, flesh.

La France, peach.
Liberty, crimson.
Madame Abel Chatenay, rose.
Marie van Houtte, lemon, tinted pink.
Mrs. John Laing, rose.
Mrs. R. G. Sharman Crawford, rose pink.

The above lists will meet the requirements of those who only want a small collection of Roses, but it will be wise to give special consideration to the most important sections, for the benefit of those readers who desire to study Roses more closely.

HYBRID PERPETUALS

The Hybrid Perpetuals form a considerable class, and comprise the largest flowered and most brilliantly coloured of all Roses. The reader who goes to a show and sees long lines of green boxes filled with immense scarlet, crimson, rose, pink and white Roses, has an opportunity of becoming acquainted with the best of the H.P.'s—as far, at least, as their blooms are concerned when produced by skilled growers. He must not assume that he knows all about them from this introduction alone; he still has to learn about them as plants; but he has got a step on



ROSES WITH YUCCA AND DELPHINIUMS
Lea Merritt

the road. He can take the names of those he admires most, order them in due course, and then see what they are like in his own hands. To get them up to show standard he will have to do more than buy strong plants, and plant them in deep, well-manured ground; he will have to prune hard, to thin the shoots, and to sacrifice some of the flower buds. Many amateurs who visit shows expect that every variety whose name they write down will come exactly the same in their own gardens as they saw it on the stand—as large, as perfect in form, as fresh, and as rich in colour—without any special treatment. Of course they are wrong, and suffer disappointment. If, however, they will be satisfied with a little less than exhibition standard—rather smaller size, less regular contour—they may get great pleasure out of H.P. Roses. The varieties have two well-marked flowering periods, the first being the end of June or the early part of July, and the second the first half of September. They are not continuous bloomers, like the Teas. There are, however, one or two varieties, notably the lovely pink Mrs. John Laing, which bloom over a much longer period than the majority.

We have seen that the Hybrid Perpetuals are of mixed parentage, the Monthly, Bourbon and Damask Roses having all been used as parents for them. They are mostly green-stemmed, with five rough leaflets. If a shoot comes up from the base which grows very strongly, and has smooth leaves divided into seven parts instead of five, it is probably not a part of the Rose plant, but of the stock on which it was budded, and had better be pulled off at the base. As a class the H.P.'s are very strongly scented, and this is one of their greatest recommendations. All are not equally fragrant, and one or two, such as Baroness Rothschild and Her Majesty, are practically scentless. Recognising that Rose lovers look for perfume, we will presently give a special selection of fragrant Roses.

H.P. Roses are generally budded on the Manetti stock in

nurseries. Private growers cannot get this stock, unless they propagate it themselves, as nurserymen do, and that is not general. If home propagation is practised it is generally by budding on standard brier stocks, in the way already advised; or by dispensing with stocks altogether, and striking cuttings (p. 11). Roses which are struck from cuttings are called "own-root" Roses. Experts consider that, on the whole, budded Roses are better than "own-rooters," but certainly there are plenty of excellent H.P. Rose bushes in cultivation which have been raised from cuttings. Some varieties do better than others, and the soil also has a bearing on success. With a naturally good Rose soil, such as substantial loam, the majority of the sorts make very good plants from cuttings. Those who like to try this method of propagation should take firm, brownish, well-ripened shoots of the current year's growth about the end of September, preferably with a short "heel" of the older wood, cut them into lengths of six or eight inches, and insert them firmly to within a couple of inches of the tip. They can be put a few inches apart in a row, and at the end of a year transplanted to the beds. They should make very good plants in the second season. If they do not, they probably never will.

The question of disbudding H.P. Roses, both in relation to shoots and flowers, turns on whether the grower's principal requirements are large numbers of medium-sized flowers for cutting, or small numbers of bigger ones for exhibition. When the plants start growing in spring after the pruning, which will be done about the end of March, they will make one growth from each of the buds that were left, and subsequently form a number of side shoots, on all of which flowers may be expected. The grower for show will not let all these shoots develop; he will take them out while they are quite small, and restrict the plants to three or four growths. Further, he will thin the flower buds on those left, removing all the small outside ones where several come in a

cluster (which, however, will not be common), and leaving the central one only. There is a half-way course between this severe limitation and that of letting the plants grow and flower just as they like; it is to limit them to six shoots each. Plants thus restricted carry very attractive flowers, and are handsome in themselves. Complete non-pruning and non-disbudding—in short, an absolutely natural system of cultivation—is convenient; it saves the unskilled amateur much searching of heart, as well as a certain amount of time. But it is not good for the weak growers, which must have severe pruning in spring if they are to do any good. It is an excellent plan for the beginner to prune all his Roses hard the first year; the following season he will have sufficient knowledge of the different varieties to be able to decide how to treat them. As stated in the general remarks on pruning, it is a golden rule to prune strong growers lightly, and weak growers severely.

The amateur who is desirous of making a collection of the best H.P. Roses should choose from the following varieties:—

Abel Carrière, deep crimson, shaded with purple.

A. K. Williams, carmine, flattish flower, a popular show Rose.

**Alfred Colomb*, carmine, globular, very sweet.

**Baroness Rothschild*, pale pink, a strong grower, very thick flower stems, no perfume.

**Ben Cant*, dark crimson, strong grower.

**Captain Hayward*, scarlet, strong grower.

**Charles Lefebvre*, scarlet, vigorous, free-blooming and very sweet, a grand old Rose.

Comte de Raimbaud, crimson, vigorous.

Comtesse de Ludre, brilliant light red, rather weak.

**Dr. Andry*, crimson, vigorous and fragrant.

**Duke of Edinburgh*, brilliant scarlet, vigorous.

Duke of Wellington, crimson, bright in colour.

Dupuy Jamain, cerise, vigorous and free-blooming.

**Earl of Dufferin*, maroon, very sweet, vigorous.

E. Y. Teas, red, not vigorous, but desirable for its perfume.

**Frau Karl Druschki*, white, very strong and free-flowering; little perfume.

**General Jacqueminot*, scarlet, a vigorous variety with very sweet flowers, a fine old sort.

**Helen Keller*, cerise, globular flowers, a beautiful variety, but not very strong.

Her Majesty, pink, very large, vigorous grower, no perfume.

Horace Vernet, scarlet, fair grower, a popular show Rose.

- **Madame Gabriel Luizet*, silvery pink, very sweet, not a good late bloomer.
Madame Victor Verdier, light red, brilliant colour, vigorous.
Marchioness of Londonderry, ivory, large, deep flower, vigorous.
Maria Baumann, carmine, deep flower, fragrant.
Merveille de Lyon, white, strong grower and free bloomer, but not sweet.
 **Mrs. John Laing*, pink, vigorous, sweet, very free bloomer, one of the best.
- **Mrs. R. G. Sharman Crawford*, pink, vigorous, very floriferous.
 **Sénateur Vaisse*, crimson, globe-shaped flower, sweet.
Suzanne Marie Rodocanachi, bright rose, very rich in hue.
 **Ulrich Brunner*, cherry, globe-shaped, a strong grower and free bloomer, very sweet.
Ulster, salmon, deep flower, strong grower.
Victor Hugo, bright crimson.
Xavier Olibo, dark crimson, globe-shaped.

* These might be chosen for a small collection.

FRAGRANT H.P. ROSES

The following varieties may be selected from the above list as very sweet :—

Alfred Colomb.
 Charles Lefebvre.
 Dr. Andry.
 Earl of Dufferin.

E. Y. Teas.
 Général Jacqueminot.
 Madame Gabriel Luizet.
 Marie Baumann.

Mrs. John Laing.
 Sénateur Vaisse.
 Ulrich Brunner.

TEA-SCENTED

The beautiful Tea-scented Roses differ very considerably from the H.P.'s. There is little resemblance either in habit or form of bloom. Whereas the H.P.'s have green wood, the young shoots of a great many of the Teas are red or brown. This has a very marked effect when the two classes are grown in separate beds. The H.P.'s will have no distinctive beauty until they are full of foliage and bloom, but the Teas will be beautiful from the time they have made their first few inches of growth. The bed will be a glow of warm, lively, cheerful colour in the earliest days of May—almost like a bed of young herbaceous Paeonies. Another important difference between the classes is that while the H.P.'s complete their growth in two separate movements, the Teas are always growing—that is, if the soil is good, and they receive sufficient moisture. The Teas flower on



AIMÉE VIBERT ROSE ON AN OLD TREE
By Hugh L. Norris

new, young wood, which means that they are far more continuous in blooming than the H.P.'s. Almost every bit of new wood on a vigorous, healthy Tea will bloom, and as such wood keeps coming for several successive months, it follows that flowering is practically incessant.

Owing to their neater flowers and relatively long stems the Tea Roses are more valuable for room and personal adornment than the H.P.'s. They are delightful vase and buttonhole flowers. With few exceptions they possess a piquant, refreshing, agreeable, but not powerful perfume. While they differ in degrees of vigour, the majority are extremely vigorous. The grower need never be afraid to take long pieces of wood with his vase flowers in the case of these strong shoots, on the ground that he is risking spoiling the plants, as plenty more will come. Like Sweet Peas, the more they are cut the better they bloom, always provided that the culture is what it should be. The beauty and grace of the buds of nearly all the Tea Roses is one of their greatest charms. The majority are long and symmetrical, with the outer petals evenly folded to the tip, or perhaps with their edges curved like the fold of a shell.

The reader will agree that there are sound reasons why he should grow Tea Roses in his garden; indeed, he may be so impressed by their merits that he will give them the lion's share of his ground. He will be wise in so doing. There will be brief periods when the H.P.'s will outshine them, as, for instance, during the first half of July, but the steady persistency of the Teas will conquer in the end. The cautious amateur may wonder why it is that if the Teas are so beautiful and valuable they are still so comparatively little grown. There are more reasons than one for this. The first is that although the Rose has been so popular a flower for many years it has been under the dominion of exhibitors, and it is only in recent times that it has come to be valued at its proper worth as a garden

flower pure and simple. Now, most exhibitors are H.P. adherents, because they want large and richly coloured flowers for *their show stands*. So long as they get a limited number of fine flowers in July, which is the great Rose show month of the year, they are content. The second reason is that there is a widespread impression that the Teas are tender plants, and consequently, that heavy losses may be expected among them in very severe winters. Although the belief is not without foundation it is carried a great deal too far. To say that most of the Tea Roses are not absolutely hardy is not to say that they are exceedingly tender. It is the inability of people to recognise that there is such a thing as a medium which causes so much mischief, and it is deplorable that large numbers of Rose-lovers deny themselves the pleasure of growing a collection of these flowers because they fear what they regard as the inevitable expense of extensive renewals every season. Even in cold districts it is quite easy to preserve the plants. One simple plan of effecting this is to draw soil up each one to the height of eight or ten inches about the end of November, and then spread a coating of long litter all over the bed between and round the mounds. This practice is not only good as a preservative, but also culturally. It loosens and enriches the surface soil thoroughly. At the end of the winter the mounds are reduced, and the soil is spread over the remnants of the litter. When the plants are treated in this way it is rarely that extensive injury is done. The upper, unprotected parts of the plant may be killed, but they can be cut away, in fact they would perhaps be removed in any case, in the ordinary course of pruning. The lower wood is safe, and being softened by the earth the buds break strongly. If any Teas be grown as standards (which will hardly be the case unless the cultivator is growing for show) some bracken may be placed among the branches, and tied round to prevent its being blown out.

The Tea Roses are propagated by budding them on to Brier

stocks. The standard Briers out of the hedges are suitable. For dwarfs (and these are grown far more extensively than standards) stocks have to be raised from seeds or cuttings of Briers. The Teas are not much grown on their own roots, but some of the most vigorous varieties may be raised from cuttings in the same way as H.P.'s.

There is a general understanding that Teas should be pruned less severely than H.P.'s, but in practice it will be found that the same rule of pruning weak growers severely and strong growers lightly may be adopted with advantage.

The following are the principal varieties of Tea-scented Roses :—

- **Anna Olivier*, white, ivory, or buff, free-flowering, vigorous, and in spite of its variable colour, a really valuable sort.
- Bridesmaid*, a deep pink sport from Catherine Mermet.
- Caroline Kuster*, lemon, vigorous.
- **Catherine Mermet*, pink, a very free bloomer. One of the best varieties we have for garden and pot culture.
- Comtesse de Nadaillac*, apricot, a charming flower and popular with exhibitors, but not vigorous.
- **Dr. Grill*, rose, vigorous and free.
- **Francisca Krüger*, deep yellow, vigorous.
- François Dubreuil*, crimson.
- **Hon. Edith Gifford*, white, free-flowering, vigorous, and generally one of the best.
- Homère*, rose, exquisite bud, vigorous.
- Innocente Pirola*, cream, vigorous.
- **Jean Ducher*, salmon, vigorous and distinct.
- Lady Roberts*, apricot, vigorous and free-flowering.
- Madame C. Guinoisseau*, yellow, vigorous.
- Madame Cusin*, deep rose, rich and distinct colour.
- Madame de Watteville*, cream, an exhibitor's variety, somewhat delicate.
- **Madame Hoste*, lemon, vigorous and free-flowering.
- **Maman Cochet*, flesh pink, deep flower, vigorous and free-flowering.
- **Marie van Houtte*, lemon, rose edge, vigorous and free.
- Medea*, pale yellow, vigorous.
- Mrs. Edward Mawley*, carmine rose, beautiful colour.
- Muriel Grahame*, cream, a charming variety, but not very vigorous.
- Niphotos*, pure white, very deep, a lovely sort, but only suitable for indoor cultivation. There is a climbing variety of it. These are two of the most popular button-hole Roses grown.
- Souvenir d'Elise Vardon*, cream, deep flower of splendid shape, but more of a show than a garden Rose.
- **Souvenir de J. B. Guillot*, crimson, vigorous and free.
- **Souvenir de Pierre Notting*, apricot, very vigorous, a most useful Rose of distinct colour.
- **Souvenir de S. A. Prince*, pure white, vigorous, and a good garden as well as show Rose.
- Souvenir d'un Ami*, bright rose, very fragrant, good both for indoors and out.

Sunrise, salmon, charming colour, but not a hardy variety.

The Bride, white or very pale yellow, a sport from Catherine Mermet, good in pots, and also a useful garden Rose.

White Maman Cochet, a white or lemon sport from Maman Cochet; it seldom comes pure white, but is in all circumstances one of the best varieties grown.

* These might be chosen for a small collection.

HYBRID TEAS

The Hybrid Teas have shown the greatest development of any during recent years. Most of the best varieties have been introduced since 1880, and several splendid sorts since 1890. It may be safely prophesied that for many years to come the most marked improvements effected with any class of dwarf Rose will be with H.T.'s. The most successful of modern raisers are working on them, and apart from that there is the consideration that the H.P.'s and Teas have already been improved so much that further development is difficult. The H.T.'s present a mine only half-worked, and one which has yielded gems of such promise as to foster bright hopes of further good things. The varieties, as we have already seen, are crossbreds between H.P.'s and Teas, and they combine in no small degree the merits of both these great and beautiful classes. They have warmer leaf tints than the former, and a longer flowering season; they have, on the whole, more vigorous growth than the Teas, and richer colours. All this amounts to saying that they are very valuable as garden plants, and such is indeed the case. In the list of twelve Roses for beds on a previous page two are Teas, three H.P.'s, and seven H.T.'s. This is surely very significant. In our own experience of Rose-growing during recent years, which embraces all the classes, the H.T.'s are already the most valuable for dwarfs, and we have little hesitation in saying that every succeeding year will strengthen their position.

As a class, the H.T.'s are distinguished by strong growth with a fair amount of young spring colour (although not quite



DOROTHY PERKINS ROSE ON OLD TREES
By Hugh L. Norris

so much as the Teas), profuse blooming, large flowers, and bright, clear colours. They are not, as a whole, quite so neat in the bud as the Teas, nor are the expanded flowers so full and brilliant as the H.P.'s, but they have a beauty and character of their own. Their long flower stems make them particularly valuable for cutting. Like the Teas, they are continuous growers and bloomers; indeed, one or two, notably the rich and fragrant Grüss an Teplitz, are rarely without flowers.

They are propagated by budding on Brier stocks, and also by cuttings.

The following are some of the best varieties:—

Alice Lindsell, cream, pink centre.

**Antoine Rivoire*, cream, orange centre, very vigorous and free-flowering.

**Augustine Guinoisseau*, silvery pink, very vigorous, and with large flowers, a sport from the old variety *La France*.

Bessie Brown, cream, strong grower, but not very free bloomer, a popular show variety.

**Camoens*, rose and yellow, very vigorous and free-flowering.

**Caroline Testout*, bright pink, vigorous, and very persistent in flowering.

Captain Christy, flesh, an old favourite.

Clara Watson, cream, rose-tinted, free and good.

Edith d'Ombraïn, white, strong grower.

Grace Darling, cream, pink shading, vigorous, free-flowering, a charming variety.

**Grüss an Teplitz*, crimson, very sweet, vigorous, and nearly always in bloom.

**Gustave Regis*, nankeen yellow, vigorous.

Kaiserin Augusta Victoria, lemon, vigorous and free.

Killarney, pale pink, vigorous.

**La France*, silvery pink, vigorous, free-blooming and fragrant.

**Liberty*, crimson, very fine.

**Madame Abel Chatenay*, salmon pink, vigorous and free.

**Madame Cadeau Ramey*, flesh, rose shading, vigorous.

**Madame Jules Grolez*, silvery pink, vigorous and free.

Madame Pernet Ducher, canary, vigorous.

**Madame Ravary*, orange, distinct, vigorous and free.

**Marquise de Salisbury*, crimson, semi-double, vigorous.

Marquise Litta, carmine rose, vigorous.

Mildred Grant, ivory, deeper tint, very thick flower stems, but not a free grower and bloomer, popular for exhibition.

**Mrs. W. J. Grant*, rosy red, very bright and free, sweet.

Papa Lambert, deep rose, vigorous.

Viscountess Folkestone, cream, very sweet.

* These would make a splendid selection for a small garden.

NOISETTES

The Noisette section is not important in point of numbers, but it includes two or three climbing or rambling varieties of considerable value. The varieties bear their flowers in clusters. The following are the chief:—

Aimée Vibert, white, free-flowering; a valuable pillar Rose, owing to its dense habit, and nearly evergreen character.

Alister Stella Gray, light yellow; a valuable wall and pillar variety, growing and flowering throughout the summer and well on into autumn.

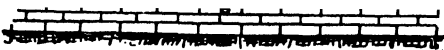
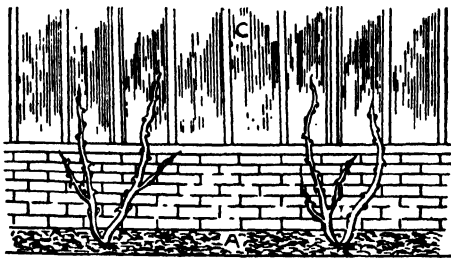
Céline Forestier, an old yellow, once popular but not grown extensively nowadays.

Fortune's Yellow, orange; another old sort, not much seen now; it does not thrive in cold situations, but succeeds admirably in a greenhouse.

Lamarque, white, with pale yellow shading; a good climber, but not very hardy.

L'Idéal, coppery red, very distinct.

Maréchal Niel.—Once the most popular of all Roses, and still a great favourite, owing to its rich colour, powerful fragrance, extremely vigorous growth, and wonderful freedom of blooming. If it were hardy enough to thrive in most districts out of doors it would be grown in every garden, but it is not. Moreover, it is



ROSES PLANTED IN BORDERS UNDER GLASS

A, border; B, low wall to enclose border; C, glass.
The shoots are trained on wires.

liable to go off with canker, often collapsing very suddenly. It is generally reserved for greenhouse cultivation, and modern growers find that they get the best results by pruning it closely back to the stock after flowering, leaving only two or three buds. If healthy, and growing in good soil, it generally breaks very strongly after this drastic treatment, and in a few

weeks makes new canes twelve to twenty feet long. These shoots ripen during the autumn, and if kept dormant in a cool temperature will throw out abundance of short, flowering growths the

following spring. *Maréchal Niel* is best planted out in a border of loamy soil in a cool greenhouse or conservatory.

Rêve d'Or.—Buff, a good climber, with dark red stems.

William Allen Richardson.—Orange yellow, charming in the bud, but not when expanded. A hardy, vigorous, and very free-flowering variety, which succeeds under the hard pruning accorded to *Maréchal Niel*.

Climbing Roses other than Noisettes.—There are several beautiful climbing Roses which do not come into the Noisette class, such as the Sweet Briers, Polyanthas, Singles, and Banksian. Let us consider a few of the best varieties in these sections.

PENZANCE SWEET BRIERS

The hybrid Sweet Briers have fragrant foliage and beautiful single flowers, which are followed by scarlet hips. They may be grown either as hedges or pillars. The following are a few of the best:—

Amy Robsart, rose, strong grower.

Anne of Geierstein, crimson, vigorous.

Meg Merrilees, crimson, vigorous.

Lucy Bertram, crimson, white centre, vigorous.

Rose Bradwardine, rose, very strong.

BANKSIAN

There are two forms of Banksian Rose, a white and a yellow. Both have small double flowers. They grow luxuriantly on a warm, sheltered wall, but not on a cold one. No pruning is required, except to thin them out when getting tangled. They are charming little Roses.

AYRSHIRE

This is a small section, but it includes two very useful varieties, both extremely vigorous growers—in fact they will ramble almost all over the garden when growing in good soil, unless kept in check.

Bennett's Seedling (Thoresbyana).—This has semi-double white flowers, borne in clusters.

Dundee Rambler.—Semi-double, white with pink edges.

EVERGREEN CLIMBERS

Also a small section, and corresponding with the Ayrshire to the extent of being represented by two particularly noteworthy varieties.

Félicité Perpétue.—White, double or semi-double, one of the most vigorous and free-flowering of all Roses; makes a splendid pillar, and is also suitable for walls. It grows with great rapidity, and makes quite a thicket of shoots.

Rampant.—White, somewhat smaller flowered than *Félicité Perpétue*, and semi-double. It grows with almost equal luxuriance to its sister variety, and makes a beautiful snow-pillar of fleecy bloom.

CLIMBING POLYANTHA

These, the multiflora or many-flowered climbers, are practically a new class, the rise of which has been one of the great features of modern flower-gardening. They are all strong growers, and bloom profusely. They are admirably adapted for arches, pergolas, and pillars, but not for walls. They are popularly known as Ramblers.

Aglaia.—The Yellow Rambler; flowers small, semi-double, and pale yellow in colour.

Claire Jacquier.—Nankeen yellow, distinct colour.

Crimson Rambler.—Rich crimson, the flowers borne in large clusters. Perhaps the most popular Rose grown. Splendid for pillars and arches, but not suitable for walls, especially in dry, poor soil.

Hiawatha.—Deep crimson, single, larger than *Crimson Rambler*, and may displace it in many gardens when it becomes well known and cheap.



PILLAR AND GARDEN ROSES
By Beatrice Parsons

Queen Alexandra.—Deep pink, double or semi-double.

Thalia.—The White Rambler, semi-double, small flowers; a free bloomer.

SINGLES

The single Roses are not, as a class, long lasting, but several grow so vigorously, and are so brilliant, that they are thoroughly worth growing.

Carmine Pillar.—Carmine; one of the most valuable of all climbing Roses; a very vigorous grower, and an abundant early bloomer.

Macrantha.—Flesh-coloured flowers, with prominent golden anthers.

Sinica Anemone.—Soft pink; vigorous grower; evergreen, likes an open fence.

CLIMBING HYBRID ROSES

Ards Rover.—Crimson; a strong grower and good for pillars; larger flowered, but less free in blooming, than the Ramblers.

Bardou Job.—Rich crimson; semi-double; good for low pillars and walls.

Cheshunt Hybrid.—Bright red; an old favourite for walls and arches.

Dorothy Perkins.—Bright pink; very free blooming, with the flowers in large clusters; blooms long and late; one of the best climbers.

Lady Gay.—Resembles Dorothy Perkins, but is of a deeper shade; a splendid variety.

Longworth Rambler.—Crimson, semi-double; a very popular climber.

Madame Alfred Carrière.—White, vigorous; a valuable wall Rose.

Reine Marie Henriette.—Deep, egg-shaped, rose flowers; highly perfumed; good for walls.

Reine Olga de Wurtemberg.—Crimson, semi-double; a vigorous grower.

CLIMBING TEA-SCENTED

Billiard et Barré.—Deep yellow; vigorous, good for arches.

Bouquet d'Or.—Deep yellow and very sweet; a popular old wall Rose.

Gloire de Dijon.—Buff, very sweet; hardy, free-flowering and vigorous; one of the most popular of all Roses.

Madame Bérard.—Fawn; one of the *Gloire de Dijon* class.

TRAILING ROSES, SUITABLE FOR BANKS

The Japanese Roses bearing the name of *Wichuraiana* are very useful for covering banks. They produce long, rambling, vigorous stems, clothed with dark green, shining leaves. Some have single, some semi-double, and others quite double flowers.

Alberic Barbier.—Cream, deeper centre, semi-double; one of the best.

Gardenia.—Yellow, double; one of the best.

Wichuraiana.—White, single.

ROSES IN POTS

Lovers of Roses who have glass will perhaps like to grow a few plants in pots. Well-grown pot Roses are beautiful objects in a greenhouse, and yield flowers for cutting before outdoor plants come into bloom. They are easy to manage. It is wise to allow them the rest which is natural to them during the greater part of the autumn and winter, but they may be started

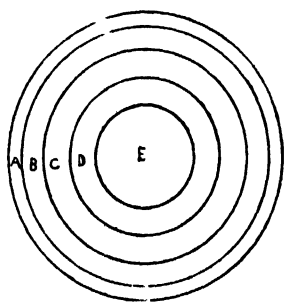
into growth towards the end of winter, and had in bloom in early spring.

A start might be made in October, either by buying plants, or by potting some from the garden. Six-inch pots will be suitable. A soil mainly consisting of fibrous loam is the best. The pots should be plunged in ashes in a sheltered place. With protection in very severe weather they will be quite safe out of doors. They may be brought into the house in batches, if desired, in order to get a succession of flowers. It is not wise to force them in a high temperature; 45° to 50° will be enough. After flowering they should be stood out of doors, and allowed to go to rest naturally. In autumn they must be repotted. The pruning may be done when they are put under glass, and should be severe, the shoots being shortened to two or three buds. The following are good varieties: Anna Olivier, Bridesmaid, Captain Hayward, Caroline Testout, Catherine Mermet, and Mrs. John Laing.

Mildew may be troublesome, both indoors and out. It is worst under glass, when the plants are subjected to cold draughts, and out of doors in extremes of drought or wet. In both cases the best remedy is flowers of sulphur, but the powder must be applied at the first sign of an attack if it is to do any good. If grubs curl the leaves of outdoor plants, they must be crushed with finger and thumb.

BULBS

THE amateur flower gardener is often ignorant of botanical distinctions, and he would not be unwise if he were to remain so, for they are generally tiresome and bewildering, and frequently unnecessary for purely gardening purposes. He might think that he at least knows what bulbs are, for he has grown familiar with the autumn catalogues, and observed the prominence therein of



B

PLANTING BULBS IN BEDS

round beds. A, B, C, D, and E, rows of bulbs. Square, or rectangular shaped beds. A, B, and C, spaces to be filled with bulbs.

such plants as Hyacinths, Tulips, Gladioli, and Daffodils. Even here, however, the botanists would perplex him if given the chance, for they would tell him that although Tulips are bulbs Gladioli are not; indeed, they might go still further, and heap confusion on his head by proving that while some Irises are bulbs others are rhizomes. Botanically, a *Crocus* is not a bulb; it is a corm. A *Begonia* is not a bulb, but a tuber.

Doubtless such distinctions as these and others which exist, but need not be drawn upon as illustrations, are necessary to botanists, or they would not be made. They are, however, certainly not needed in ordinary gardening. The *Gladiolus*, equally with the *Tulip*, forms a body underground that is distinct from, and additional to, its roots; and if the structure of the two bodies differs in such a degree as to justify botanists in putting them into two distinct classes, that need not place flower gardeners under the obligation of keeping them separate unless



DWARF AND CLIMBING ROSES, WITH ZONAL GERANIUMS
By Beatrice Parsons

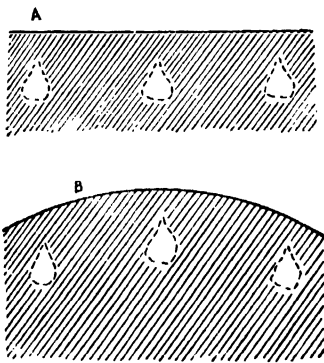
they think proper. The large bulb-dealers display an elasticity of conscience in this matter which the amateur may imitate, for it will be to his convenience and tranquillity of mind to do so. The very worst that can happen to him in the matter is that some budding botanical student may one day or other make a point against him. This will doubtless afford deep satisfaction to the callow botanist, but it will not have the remotest effect on the garden of the culprit, who may go on his way happy and unrepentant. For ourselves, we are cheerfully conscious of technical error in the composition of the present chapter on bulbs, and make no sort of apology for taking a simple line.

Winter Aconites.—Our very first plant, the Winter Aconite (*Eranthis hyemalis*), is not a true bulb, but we buy it—and buy it very cheaply too—from bulb-dealers in the autumn. It is a low grower with a yellow flower, which nestles in a green ruff. Individually, it is not very striking, but in a mass on grass, especially when associated with Snowdrops, it is very charming. One may see it thus planted in the Royal Gardens, Kew. It is not in the least particular about soil.

Allium neapolitanum is a pretty bulb, related to the Onion. Happily it has not so pungent an odour. The long stems of white flowers are very pure and pleasing. The plant may be grown out of doors, or in pots or baskets for early blooming under glass. At Kew it is grown in a hanging basket suspended from the roof of the greenhouse, in company with such charming plants as Begonia Gloire de Lorraine and Lachenalias. Those who copy this pleasing plan should get a wire basket and line it with moss to enable it to hold soil. The compost may consist of two parts of loam, one of leaf-mould, and about a tenth of coarse sand. The bulbs may be put in during November, and covered an inch deep. They will probably bloom about the end of February.

Alströmerias are very distinctive in appearance, and most pleasing

to boot. One occasionally meets with them in several gardens in a particular district, and not one of the owners knows the name, or can remember it for many hours if it is given. This is certainly a case, if there ever was one, for a popular name. Some one has made an attempt to meet the want by calling them Herb Lilies, but that, of course, is altogether too vague and general to be of any use. The plants flower in summer, and the stems rise two feet or more high. The plants give no trouble when they have once become well established in light, warm soil; in fact,



PLANTING BULBS IN BEDS

A, flat surface where the soil is naturally dry and light; B, rounded surface where the soil is of a rather heavy nature.

they are best left to themselves, as they do not like frequent disturbance. Any feeding that is thought necessary can be done in the form of mulchings of manure. Perhaps the most attractive species is *pelegrina*. In cold districts, especially if it is growing in damp, heavy soil, it is wise to spread some dry litter or ashes over the root-stocks in

Anemones will be found in the bulb catalogues, and the rugged little roots (which rather resemble lumps of dry mud)

sell in thousands, especially in the case of *coronaria*, the Crown Anemone, of which *St. Brigid* and *Alderborough* are splendid strains; *fulgens*, *apennina*, and *nemorosa*. These will be referred to under *Herbaceous* and *Rockery Flowers*.

The Arum Lily (*Richardia* or *Calla aethiopica*) is a beautiful and popular plant which thousands of bulb lovers grow in their greenhouses and rooms for the sake of its pure white spathes, which we may call flowers in a popular way. The Arum Lily is not perfectly hardy, and cannot be relied on, therefore, to pass the winter out of doors, except in very mild districts. Lovers of the plant must not be misled by seeing it growing in the open air in the Midlands and north of Great Britain, because it is the custom of

gardeners to plant it out late in spring for the summer season, lifting it again in September, and putting it into pots for flowering in winter and spring. In places where there is little or no frost it will often pass the winter safely, especially if it is well established near water, and when a colony of it is established there are few objects in the garden that are more beautiful. There is a miniature form of the Arum Lily called Little Gem that many people like for pot culture, and there is also a yellow named Elliottiana.

Arum Lilies can be bought from bulb-dealers in autumn, and they may be potted at once into a similar mixture of soil to that recommended for Alliums. Unless they are very large they may go into 5-inch pots, but when they have attained to considerable size they must have 7-inch or 8-inch pots, as they are free rooters and need a great deal of water. The transfer is not likely to be called for the first winter. Assuming that the plants are bought in autumn, they may go into the smaller pot for the winter, be planted in rich soil in the garden at the end of May, and be potted up into the larger size at mid-September. They may lose one or two leaves when they are potted, but this need not alarm the grower, as fresh ones will soon form. When he has got large clumps he may divide them, keeping the small offsets which form in little pots until they are strong enough to go into the full size for flowering.

Arum Lilies should never be allowed to suffer from want of water, whether growing indoors or out. If the soil gets quite dry, and remains so for even a short time, they may suffer severely. The grower should remember that they are semi-aquatics, and then he will not neglect them in this all-important matter.

We have seen that the Arum Lily is not really an Arum, but a *Richardia*. The Arums proper are similar in structure, but in no case so beautiful as the chaste and lovely Lily of the Nile. They are hardy plants, mostly with thick, fleshy, spotted stems, and strangely marked flowers. They are uncanny, and in the case

of one or two species, positively forbidding-looking flowers. It needs a lively imagination, in conjunction with a generous disposition, to see beauty in the plant called the Black Calla, for instance. With botanists this is *Arum arisarum*. If the reader has his curiosity excited by seeing a plant in a catalogue under the name of Monarch of the East, and is led to wonder what sort of thing it can be, let him calm himself with the information that it is neither more nor less than one of these Arums, and that its name is cornutum.

The Arums form a nectar which has a most exhilarating effect on small winged insects. Sad to say, they become inebriated upon it. Still worse, the first thing that they do when they recover from the effects of their debauch is to hasten back for more strong liquor.

Tuberous-rooted Begonias.—Begonias of the tuberous-rooted section are immense favourites with all lovers of flowers, alike for greenhouse and flower-garden decoration; and it would be strange if it were otherwise, in view of the striking beauty of their flowers. Who that has seen a group of modern tuberous Begonias exhibited at an important flower-show by one of the leading growers can ever forget the sight? It is something to live in the memory for all time. The singles are beautiful enough, with their great flowers borne in abundance well above the thick, massive leaves, and with their brilliant and varied colours. But the doubles are even more strikingly handsome. The flowers differ greatly in form. Some are like huge Camellias; others resemble Water Lilies (*Nymphaeas*). Some are of the form of large Hollyhocks; others as massive and rich as Paeonies. The range of colours is not complete, because we have not yet got blue, but it is very considerable. There are whites as pure as new-fallen snow, yellows of various shades, beautiful blush and Picotee-edged flowers, delicate pinks, soft rose shades, brilliant salmon and orange hues, glowing scarlets, and deep, rich crimsons.

The tuberous Begonia is quite a modern flower. Although the



TEA ROSE
By Hugh L. Norris

species had no particular importance in themselves, as parents they proved invaluable. Their progeny have been intercrossed until all trace of the original plants has been lost, and we have a new race. The value of the tuberous Begonias as flower garden plants is limited by the fact that they do not flourish in hot, dry weather. Beds of them are apt to be thin and ineffective in a scorching summer. The plants do not absolutely die out, and when the cooler weather of late September and early October comes they spread and bloom freely; but as far as the main part of the summer is concerned they must be written down as poor. The contrast in a damp, cool summer is remarkable. Then the plants grow strongly, fill out the beds, and give a beautiful display of bloom by the end of July at the latest.

Since so much turns on moisture, the admirer of Begonias will probably ask himself whether he cannot ensure success, dry summer or no, by making provision for supplying the necessary humidity. Yes, he can certainly do a great deal. He can deepen and manure his soil for one thing, and if this work is thoroughly done it will go a long way. If he will work the soil two spades deep, and put a thick coat of decayed yard manure about nine inches below the surface, he will have done much to encourage success. Another thing that he can do is to specially prepare his plants in the spring. He can buy his tubers, or take them out of their winter quarters, about the end of March, and place them six inches apart in boxes filled with a compost in which leaf-mould predominates. A situation on a shelf in a greenhouse, or in a frame (with a covering in cold weather if there is no artificial heat), will suit them, and in the course of a week or two buds will show. Never let the soil get quite dry, and the shoots will push strongly. If kept close to the glass they will be short and sturdy, not long and weak. They should have abundance of air to help to keep them healthy. This treatment will certainly bring its reward. By the first week in June the plants will be very strong. A third

thing that the resolute grower can do is to give the plants a good send-off by keeping the soil moist and mulching with short, decayed manure directly they have made a start. Should there be no rain he will be well advised to give an occasional soaking of water, varied with liquid manure, withdrawing the mulching for the purpose, and afterwards replacing it, in order to conserve the moisture by checking evaporation.

All this means a certain amount of trouble, which the average gardener may not consider he has time to take, but which the person who is bent on having a fine bed of Begonias will consider justifiable. Let him recollect that almost everything depends upon getting strong plants and giving them a vigorous push-off. Weak, drawn plants, left to fight their way in poor, thin, dry soil, have little chance; and although they may live they are not likely to give pleasure or satisfaction. Strong or weak they are likely to be at their best at the end of September onward. If strong they will be objects of brilliant beauty in the cool days of October, and unless a sharp, early frost comes they will be a lovely picture for several weeks. Towards the end of October they will begin to get thin, and they will gradually dwindle away, the flowers slowly fading, and the leaves and stems decreasing in substance. When *their beauty is fairly past* they may be taken up, the remains of the growth removed, and the tubers stored in a dry, cool, frost-proof place until spring.

Plants which are to be grown in pots may be started in the same way as those for the garden, and potted in May. Pots six inches or seven inches across will be suitable. The compost may consist of three parts fibrous loam, one of leaf-mould, one of decayed manure, and a large potful of coarse sand to every peck. It should be in a moist, but not sodden state when used, and should be pressed well down round the tuber and roots. With water supplies as needed, adequate staking, and abundance of air, the plants will thrive.

As far as varieties are concerned, the cost of tubers has to be taken into account. One can buy new, named varieties, just as one can of all special flowers, but they may cost several shillings each. Older sorts may cost ninepence or a shilling a tuber. If the grower does not want named varieties he will be well advised to buy mixtures from a reliable merchant or nurseryman. Very good "strains" are procurable for four or five shillings a dozen. A still cheaper way of getting a stock of plants is to sow seeds, but an early start must be made, in heat, if flowering plants are to be had the same year. January is not too early. If the sowing is deferred until the spring, the best that the grower can do is to get tubers for flowering the following year. It is necessary to exercise great care in the sowing, as the seed is expensive, and almost snuff-like in its fineness. The surface soil for its reception must be reduced to very small particles—in fact, it is a good plan to compose the surface of silver sand, and after very carefully brushing the seed over it from the palm of the hand with a forefinger of the other, to merely cover with a few light flakes of clean moss. A square of glass, shaded with paper, may be put over the receptacle, which should be stood on a shelf in a warm greenhouse. If watering is required before the seeds germinate, it should be done by dipping the vessel nearly to the brim in water, which will rise through the drainage hole to the surface of the soil. Directly the plants appear the moss and the paper shading must be removed. The seedlings may be pricked off two inches apart in boxes when they are about an inch high, and potted singly from these when they have grown large enough to touch each other. They will grow slowly in their early stages when forming the tuber, and it will perhaps only be some of the strongest plants which will be forward enough to bloom well the first year. However, if a good supply of strong tubers be got one should be satisfied, because they will be all ready for the next year's flowering.

The following are good and inexpensive varieties:—

SINGLE.

Grant Allen, crimson.
Prince of Orange, orange.
Starlight, salmon.
Exquisite, pink.
Sunshine, yellow.
Snowdrift, white.

DOUBLE.

B. R. Davis, crimson.
H. Russell, scarlet.
Claribel, salmon.
Beauty of Belgrove, pink.
Rev. G. Lascelles, yellow.
Lord Roberts, white.

Belladonna and Guernsey Lilies.—There are very few bulbous flowers more beautiful than those charming twins, the Belladonna and Guernsey Lilies, the former of which bulb-dealers may offer under the name of *Amaryllis Belladonna*, and the latter of *Nerine sarniensis*, or under their popular names. Both have rosy flowers, and those of the Guernsey Lily are particularly brilliant—in fact, they seem to positively sparkle. The bulbs soon start growing in autumn, like those of the white Madonna Lily, and in the case of all the members of this lovely trio the dealer likes to have the order early, so that he can put it on a special file, and execute it the moment the bulbs come in. He does not like to have to conduct a long correspondence after his cases have arrived, for all the while it is going on the bulbs are growing, and he is afraid of their getting spoiled. It is to the buyer's interest to humour the dealer in this matter, and the order for the Lilies may go in when the earliest of the bulbs for the autumn supply, such as White Roman Hyacinths, are requisitioned. It is wise to choose a sheltered position for the Belladonna and Guernsey Lilies, if possible, or a border under a wall with a southern or western aspect, and to provide a well-drained, loamy, friable soil. If they establish themselves in such a position, and are protected with dry litter in hard weather, they are almost sure to flower well every year; and if they do, nothing in the garden is likely to be more admired.

Calochortus (Mariposa Lily).—Many amateurs grow bulbs for years without ever learning the full resources of the family. They



CROWN IMPERIALS
By Margaret Waterfield

often completely miss some exquisite plant, and find it difficult to credit that such a beautiful thing could exist without their becoming aware of it, when at last they make its acquaintance. The *Calochortus* might easily furnish such an example, for it is not often seen, and yet it is beautiful in the extreme. Perhaps the principal reason why it is not grown in nearly every garden is that it is not quite so hardy and accommodating as our most popular bulbs, such as Daffodils. It cannot be relied upon to thrive in a damp, heavy soil, nor in a cold place. It luxuriates in a warm border under a sunny wall, where the soil is light and sandy. With protection in the form of litter in winter it may live for several years in such a spot. The species *albus*, *speciosus*, *venustus* and *pulchellus* are all extremely pretty, and the bulbs, which may be bought early in autumn, are not expensive. They are quite suitable for pot culture, and may be treated like Hyacinths.

Chionodoxa (*Glory of the Snow*).—This ranks with the smaller bulbs, such as Scillas and Snowdrops. There are several species and varieties, all blue, blue and white, or white, the best known being *Luciliae*, *Tmolusii*, *grandiflora*, and *sardensis*. The first of these is the true Glory of the Snow. It has delightful blue flowers with a white centre, grows to about the same height as the Snowdrop, and is in bloom at the same time. It is a hardy, attractive, inexpensive, and accommodating little bulb, and may be represented in gardens where such little gems are loved.

Christmas Roses will be referred to under Herbaceous Plants, and *Colchicum autumnale* under Rockery Flowers. Both are sold by bulb-dealers.

Crinums.—Lovely bulbs are the Crinums, and if they were fully hardy, which they are not, it is quite certain that they would be largely grown in gardens. As it is, only those people who can afford to take risks will grow them out of doors. Like the Belladonna Lily they can only be relied on in warm, sheltered places, and in light, sandy soil. Cold, wet soils and exposed situations

are unsuitable. *Powellii* and *capense*, the former rose, the latter pink, are two of the best for the open air.

Crocuses.—The charm of many of the species of *Crocus* will be referred to (see Rockery Flowers), and bulb specialists are quite likely to make a little collection of them. Whether that be done or not, the value of the cheap Dutch Crocuses, which bulb-dealers sell for a few shillings a thousand, will not be forgotten by the majority of flower gardeners. Very hardy, very cheerful, very easy to manage is the little *Crocus*. The Golden Yellow is particularly bright, and it has comparatively large flowers. It has a very enlivening effect when flowering in a broad mass. There is a whole grassy hill of it at Kew, where thousands of flowers sparkle in the March sunshine. Unfortunately, the birds are very prone to pulling the flowers to pieces. Apologists for the feathered marauders say that the latter are merely in pursuit of insects or water, but that does not put the flowers together again. Lines of black thread should be stretched above the flowers as a protection. Oddly enough, the birds rarely attack the white, purple, and lilac Crocuses when there are yellow ones near. As a change from Crocuses they will pull Primroses to pieces, and again it is yellows which fare the worst. This shows that the birds have a sense of colour. Why, though, do they consider that yellow Crocuses contain more insects or more moisture (which is it, apologists?) than the other colours?

The Crocuses are charming in lines to beds and borders, also in grass and under trees. They are so cheap that they can be planted in any quantities, and if the grower wants somewhat larger flowers than the common, unnamed blue, white and striped yield, he may buy larger varieties under name at a cost which, though a trifle higher than for the others, is still very low.

The Crown Imperial (Fritillaria Imperialis) is a very handsome plant with large yellow, orange or red flowers, and it will thrive in most soils. The Snake's-head Lily (*meleagris*) is also a Fritillary, and a very interesting plant, but it has none of the

showy beauty of its larger sister. It is cheap, and easy to manage, thriving nearly anywhere.

Daffodils and Narcissi.—The true, typical Daffodil is the Lent Lily, the botanical name of which is *Narcissus pseudo-narcissus*. Popularly, Daffodils are Narcissi and Narcissi Daffodils, but to be correct we may only speak of those Narcissi as Daffodils which have long central tubes or trumpets. Every grower of Narcissi will have noticed that the flowers are divisible, broadly, into two parts: an outer ring of petals, called perianth segments, and a central tube called the crown. In the big sorts like Emperor and Empress the tube or "crown" is elongated into a trumpet, and becomes the dominant part of the flower; these are true Daffodils—glorified Lent Lilies. In others, the tube diminishes into a small saucer which finds its most minute proportions in the Poet's Narcissus, poeticus; these are not Daffodils. To claim the popular name of Daffodil the crown must be as long as the perianth segments.

Wanting some plan of classifying Narcissi, the botanists adopted that of comparing the length of the crown with that of the perianth segments, and put them into three classes. The first, the Large-Crowns (*Magni-coronati*), have flowers in which the crown is as long as, or longer than, the outer petals. The second, the Medium-Crowns (*Medio-coronati*), have flowers in which the tube is only about half the length of the segments. The third, the Small-Crowns (*Parvi-coronati*), have merely flattish, saucer-like crowns. The classification is not a very satisfying one, and as the different subsections have been crossed one with another there is a good deal of confusion. But it need not worry ordinary growers. The tangle may be left to the specialists, who will perhaps unravel it some day.

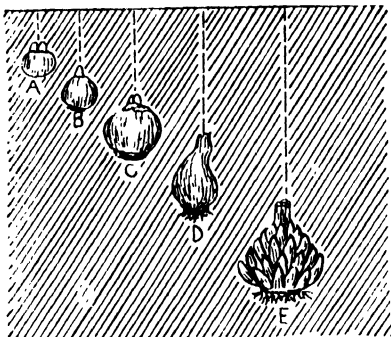
The origin of the word "daffodil" is somewhat curious. It is derived from the Greek *asphodelus*, through the Old French *asphodile*, and the Middle English *affodile*. The addition of the "d" as a prefix was doubtless due to casual misspelling. Of

course there is a genus of plants called *Asphodelus*, popularly *Asphodel*, and its members have the best right to the name *Daffodil*, which, however, belongs to a plant of a different botanical order.

Poets have made much use of the *Daffodil*, and if a name is anything, poeticus is the true poet's *Daffodil*, but that is certainly not the flower which Shakespeare had in mind when he wrote of

"Daffodils, that come before the swallow dares
And take the winds of March with beauty,"

because they do not flower until late April or May. He must have referred to the *Lent Lily*, which



DEPTH AT WHICH TO PLANT DIFFERENT BULBS

A, Snowdrops, Crocuses, or Scillas; B, Jonquils, Tulips, &c.; C, Hyacinths; D, Narcissi, Gladioli, &c.; E, Lilliums.

is an early bloomer, indeed all the trumpets or *Large-Crowns* flower early. An interesting and beautiful member of the *Large-Crowns* class is *Bulbocodium* or *Corbularia*. The latter name springs from the likeness of the crown to a basket (note also "corbel" in architecture)—*corbularia* meaning a small basket. *Bulbocodium* is yellow, and there is a charming white variety called *monophylla*

(one-leaf). In these pretty *Daffodils* the outer segments are quite subordinate to the crown. The *Medium-Crowns* succeed the *Large*, and are a most charming class. They are sometimes called *Chalice Daffodils*, owing to the resemblance of the crown, pointed out by that rare old writer Parkinson, to the wine chalice at the Lord's Table. They are also spoken of as the *Incomparables* (*Narcissus incomparabilis* of botanists).

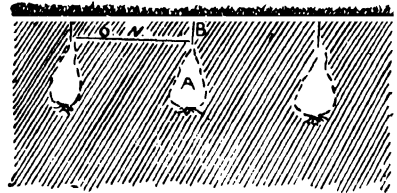
The *Small-Crowns* (poeticus and its varieties) bloom last. It is claimed for the Poet's *Narciss* that it is the legendary flower which sprang from the body of vain *Narcissus*, who

"Died to kiss his shadow in a brook."



CROWN ANEMONE
By E. Fortescue Brickdale

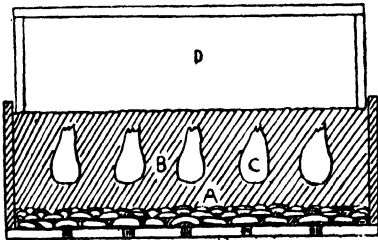
Be that as it may, it is an old and much-loved flower. The crown is a mere orange rim, hence the name "pheasant's eye" which is often applied to it. The bunch-flowered or Polyanthus Narcissi (*Narcissus Tazetta*) are also Small-Crowns, and are late bloomers when grown out of doors, but they are almost exclusively cultivated under glass, where two varieties, Paper White and Double Roman, flower early.



PLANTING BULBS IN GRASS

A, bulbs; B, opening through turf.
six inches apart.

The Daffodil lover does not get out of his difficulty about classification as soon as he has learned about the three Crown sections, because when he opens the books and catalogues he reads of such groups as Burbidgei, Leedsii, Humei, and Barrii. These are hybrids, and take their names from the hybridists who have produced them. Hybridisation is still going on actively, and it may end in so complete a breaking up of group distinctions that a totally new system of classification will be called for.



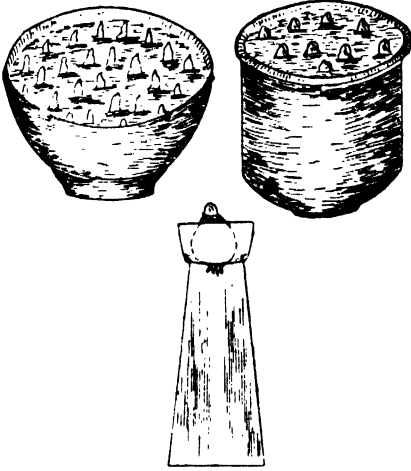
IN BOXES

A, drainage; B, compost; C, bulbs;
D, empty inverted box.

Let us leave that thorny subject, and find pleasure in the reflection that if the multiplication of hybrids is likely to worry classifiers, it will at all events be good for garden-lovers, because it will give them more beautiful varieties with which to work. Fortunately, the Daffodil is an easily grown plant. It will thrive in most soils, but luxuriates in a deep, cool, substantial medium. It may be used in beds, borders, woodland and grass with equal effect. The bulbs may be planted double their depth in September, October, or November. If the soil is fertile increase will be rapid and propagation may be effected by dividing the clumps.

BEAUTIFUL FLOWERS

The Narcissi are also charming for pot culture, and may be treated the same as Hyacinths. A method of growing them which is rapidly increasing in favour is to put them in undrained jars of green ware, in peat-moss fibre. They thrive admirably when thus grown, and are beautiful for rooms.



BULB-GROWING IN GLASSES, AND IN MOSS FIBRE IN VESSELS WITHOUT DRAINAGE

Receptacles suitable for Narcissi, Tulips, and Snowdrops.

They have a special enemy, called the Narcissus fly (*Merodon equestris*), the maggots of which attack the bulbs and cause them to decay. Any plants that are found to be attacked should be burned, in order to prevent the spread of the enemy.

The number of Daffodils is so enormous that the task of making a selection is a very difficult one, but the greater the number the greater the necessity for making the attempt to reduce it, as a help to bulb-lovers who are not acquainted with the best varieties. The following tables may be found useful. All are cheap, unless a note to the contrary is added.

LARGE-CROWNS.

Yellow Trumpets.

Ard Righ.	Glory of Leyden.	King Alfred (dear).
Bulbocodium.	Golden Spur.	Maximus.
Cyclamineus.	Henry Irving.	Obvallaris (Tenby Daffodil).
Emperor.	Johnstoni Queen of Spain.	Van Waveren's Giant (dear).

White or Cream Trumpets.

Albicans.	Madame de Graaff (dear).	Pallidus praecox (early).
Cernuus.	Moschatus.	William Goldring.

White and Yellow Trumpets (Bicolors).

Duke of Bedford (dear).	Madame Plemp.	Princeps.
Empress.	Michael Foster.	Scoticus
Grandis.	Mrs. Morland Crosfield (dear).	Victoria.
Horsefieldii.	Mrs. Walter Ware.	Weardale Perfection (dear).

Double Trumpets.

Capax plenus.		Lobularis plenus.		Telamonius plenus (Van Sion).
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MEDIUM-CROWNS.

Autocrat.		Lucifer (dear).		Red Coat.
Barrii conspicuus.		Leedsii Duchess of West-		Red Star.
C. J. Backhouse.		minster.		Sir Watkin.
Gwyther.		M. Magdaline de Graaff.		Stella Superba.
Juncifolius (Rush-leaved).		Odorus rugulosus (sweet).		Triandrus (Angel's tears).

Double Chalice-flowered.

Butter and Eggs.		Orange Phoenix (eggs and bacon).		Sulphur Phoenix (codlins and cream).
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SMALL-CROWNS.

Biflorus.		Poeticus.		Poeticus plenus (double or
Burbidgei Ellen Barr.		„ Almira.		Gardenia flowered).
„ John Bain.		„ Cassandra (dear).		„ poetarum.
Jonquilla (Jonquil).		„ ornatus (early).		

Polyanthus Narcissi.

Bathurst.		Grand Monarque.		Soleil d'Or.
Double Roman (early).		Paper White (early).		White Pearl.

CHEAP AND PRETTY NARCISSI

It may be well to supplement the foregoing classified lists with a general one prepared specially for the benefit of those amateurs who want to plant in large quantities, and cannot afford dear sorts. Happily, some of the cheapest are also among the best. English-grown bulbs are offered at marvellously low prices in autumn, and buyers might look out for advertisements of them in the gardening papers. The list includes both early and late flowering sorts.

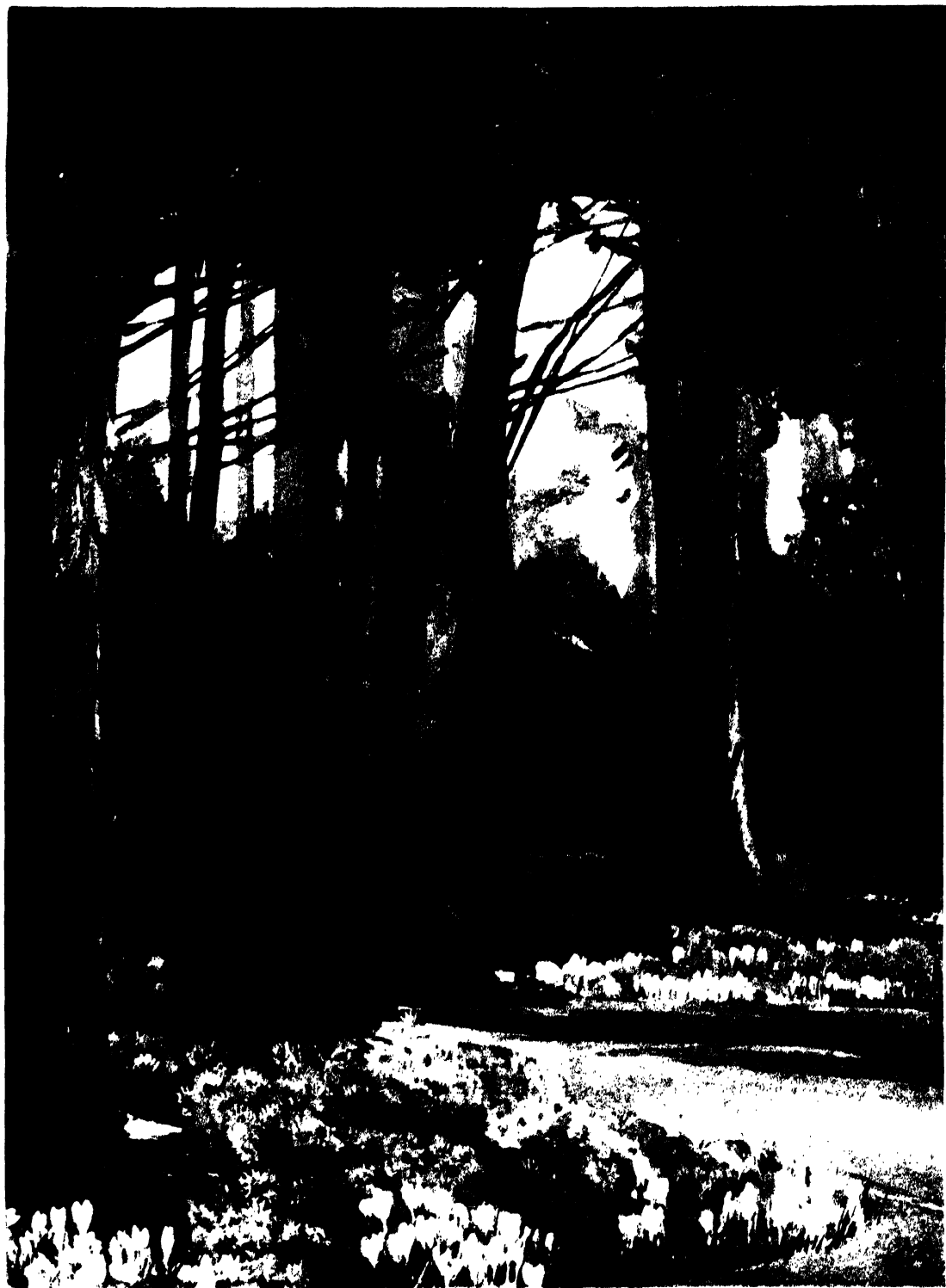
Barrii conspicuus.		Henry Irving.		Poeticus ornatus.
Butter and Eggs.		Horsefieldii.		„ plenus.
Emperor.		Obvallaris.		Sir Watkin.
Empress.		Pallidus praecox.		Telamonius plenus.
Golden Spur.		Poeticus.		

Dog's Tooth Violets (*Erythroniums*) will be mentioned under Rockery Flowers; they are pretty and cheap bulbs, procurable in autumn.

Freesias are favourites with everybody, and their numbers look like being increased by hybrids and cross-breeds, for skilled men are at work upon them, crossing the species and varieties. One excellent hybrid, *Chapmanii*, has already been raised by a Sussex florist, who crossed *refracta alba* with *aurea*, and then re-crossed with the best of the offspring. In their early days of scarcity, new *Freesias*, like all other new plants, will be relatively expensive; but the flower gardener who has to content himself with *refracta alba* will suffer no hardship, for it is a beautiful flower and deliciously scented. Flowers can be got at midwinter by potting bulbs in late summer. Lovers of the plant take care to get successions of it by potting bulbs at intervals. The soil recommended for *Hyacinths* will do. Half-a-dozen bulbs may go into a medium-sized pot. Some growers plunge the pots in fibre the same as in the case of *Hyacinths*, but it is not necessary, and if it is done the plants should be examined at short intervals, as they are apt to push growth very quickly in a mild spell of weather, and if the shoots run into the fibre they will be greatly weakened. After the plants have flowered they may be gradually dried off, and when at rest the bulbs may be taken from the soil and spread in a dry, sunny spot for a few weeks; this will ripen them thoroughly, and insure them flowering well the following season.

Galtonia, sometimes grown under the name of *Hyacinthus candicans*, is a tall, white-flowered bulb, which can be bought for about a penny (at a still lower rate in quantity), and is well worth including.

Gladioli will be referred to under Herbaceous Plants, and it need only be said that they are among the most beautiful of the plants of which bulb-dealers supply roots in a dry state in autumn, winter, and spring.

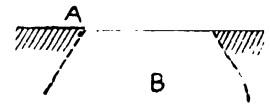
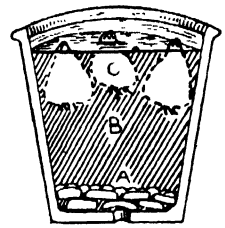


ANEMONE AND CROCUS
By Margaret Waterfield

Hyacinths are loved by everybody. The poorest townsman knows what "iercins" are, because he sees them in large beds in the parks of London and provincial cities. The peasant widow grows some in water for the window of her little sitting-room. In pots, in glasses, in the soil of the open garden, the *Hyacinth* is equally at home.

We speak of the *Hyacinth* as a Dutch bulb, not because it originated in Holland, for it is an Eastern plant, but because it is one of the plants specially cultivated on a vast scale for commercial purposes in Holland. The land between Leyden and Haarlem is particularly suited to *Hyacinth* culture. The sand is cut away until a level a few feet above the peat-bed is reached, and a site is thus secured which is well supplied with sub-soil moisture—an essential to successful cultivation. The sand is enriched with cow manure. Any cool, moist soil in England will grow *Hyacinths* well, and people make a serious mistake who suppose that it is sand which is the principal reason for the success in Holland, and consequently attempt to grow *Hyacinths* in sand in Great Britain, without a moisture-holding stratum beneath it. We have grown the finest of *Hyacinths* out of doors in the south of England, but it was not in dry sand; it was in cool, moist clay. Lovers of *Hyacinths* should remember that water is the life blood of these plants, and never stint them for moisture, whether indoors or out.

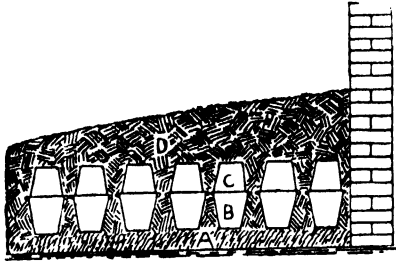
For greenhouse decoration, large, sound bulbs, firm at the base, should be put into 5-inch pots in October or November, in a compost of fibrous loam three parts, leaf-mould and decayed manure one part each, and a tenth of the whole of coarse sand. The soil should be moist when used, and pressed into a fairly firm, but



POTTING HYACINTHS

Upper figure.—A, drainage; B, compost; C, bulb.
Lower figure.—A, shows crown of *Hyacinth* B, above the surface of soil in pot.

not actually hard, mass over a drainage of crocks and moss. About half an inch of the top of the bulb should be left exposed. The pots may be put together in a group in the garden on a bed of cinders, and covered a few inches deep with cocoa-nut fibre refuse,

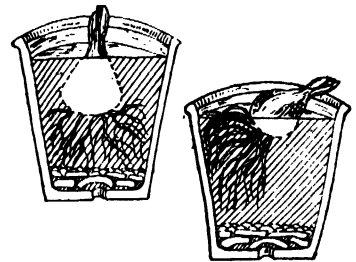


BULBS IN POTS UNDER SAND

A, bed of ashes; B, pots containing bulbs; C, empty inverted flower-pots; D, sand.

in order to check top growth until roots have had time to form. In from six to ten weeks, or when the top growth is of the size of a filbert, they may be brought into the greenhouse. When the pots are full of roots frequent supplies of water will be needed, and liquid manure may be given with advantage. The flower spikes will need staking.

If they are to be grown in glasses care should be taken to choose smooth, symmetrical bulbs, which will fit the necks of the receptacles. The water may come close to the base without touching it. One or two pieces of charcoal will help to keep it pure; should it become thick and smelly it will be wise to pour it away and substitute fresh, but this should be done very carefully, so as to avoid injuring or drying the roots. The glasses should be kept in a dark cupboard until the roots reach the bottom of the receptacle. A wire support, looped at the base to clasp the neck of the bottle, will be necessary to keep the plants from toppling over.



HYACINTHS IN POTS

Upper figure.—Bulb growing freely when properly potted and watered. Lower figure.—Bulb lifted out of the soil by the roots when improperly potted, and not watered to settle the soil at the outset.

Hyacinths for the garden should be planted as early as possible in November, and may be covered three inches deep. The more deeply the soil is dug, and the more thoroughly it is broken up, the more likely the plants are to thrive. Light soil must be particularly well worked, and it should be manured liberally. Heavy

land will not need much manure. It is wasteful to dot odd bulbs about the garden, because they produce no particular effect. Clumps should be formed, and if they are thought to be a little stiff they may be associated with Chalice Daffodils, which are generally in bloom at the same time.

The following are good Hyacinths :—

<i>Dark Blue.</i>	<i>Dark Red.</i>	<i>White.</i>
Grand Maitre.	Robt. Steiger.	La Grandesse.
King of the Blues.	Von Schiller.	Grandeur à Merveille (blush).
<i>Light Blue.</i>	<i>Pink and Rose.</i>	<i>Yellow.</i>
Lord Derby.	Fabiola.	King of the Yellows.
Grand Lilas.	Norma.	

Doubles.

Grootvorst, red. | *Laurens Koster*, blue. | *La Tour d'Auvergne*, white.

Muscari, which are April bloomers of low growth, are commonly spoken of as Grape, Feather or Musk Hyacinths, according to the species. Thus, *Muscari botryoides*, blue, is the Grape Hyacinth. It is a pretty plant, and it has white, pale-blue and flesh-coloured varieties. *Muscari comosum monstrosum* is the Feather Hyacinth ; it is also blue. *Muscari moschatum*, blue and yellow, is the Musk Hyacinth. There are other good *Muscari* besides these, notably conicum Heavenly Blue, which grows freely, especially in cool, moist soils, and spreads rapidly.

Irises will be referred to under Herbaceous Plants. Let it be remembered that many of the most charming are true bulbs. The English and Spanish, which are so beautiful and yet so cheap, are bulbs.

Ixias are not often grown out of doors, as they are not fully hardy. If so cultivated they ought to have a warm spot, and be protected with litter in winter. They are undeniably pretty, with their graceful spikes and bright flowers ; and if not grown out of doors a few might be tried in pots, being given the same treat-

ment as Hyacinths, except that several bulbs may be placed in each pot. *Flexuosa*, pink; *speciosa*, crimson; and *viridiflora*, green, are three attractive sorts.

Lachenalias are most attractive and distinct bulbous plants. Many gardeners grow them in baskets suspended from the roof of warm greenhouses, and they are used in this way at Kew, where they form charming companions to Gloire de Lorraine Begonias and other plants in March. The grower procures a wire basket, lines it with moss, fills it with similar soil to that advised for Hyacinths, and presses bulbs into it all round. Two of the best species are *Nelsoni*, yellow, spotted leaves; and *tricolor*, green, red, and yellow, also with spotted leaves.

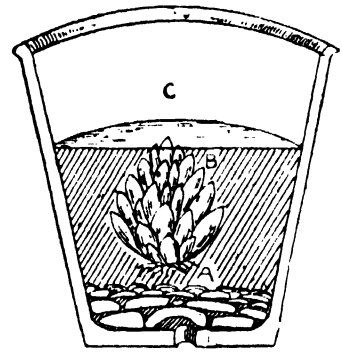
Leucojums (*Snowflakes*) are favourites with bulb specialists. The species *aestivum* is called the Summer Snowflake, but it is rather a late spring than a summer bloomer. It grows about eighteen inches high, and has large white flowers. The Spring Snowflake (*Leucojum vernum*) flowers a few weeks earlier, and also has white flowers tipped with green. It is not so tall as *aestivum*. There are two pretty varieties of it, namely, *carpathicum* and *Vagneri*. The former has yellow-tipped flowers, and the latter is more free-flowering than the type. The Snowflakes are very pretty, both in the border and rockery, and they are easy to grow. They may be purchased and planted in autumn.

Liliums are the most majestic of all bulbous plants, and few are the gardens which do not contain some representatives of this noble genus, either grown out of doors or in pots. They are valuable for every gardening purpose. The Lilies are worthy of being specialised if any flowers are, and they will yield a rich harvest of interest and beauty to whoever makes a study of them. They come from different parts of the world, and they vary greatly in habit, size of bloom, and colour. Some are powerfully perfumed. With few exceptions they have large flowers, which are distinguished by great substance and exquisite purity. In the



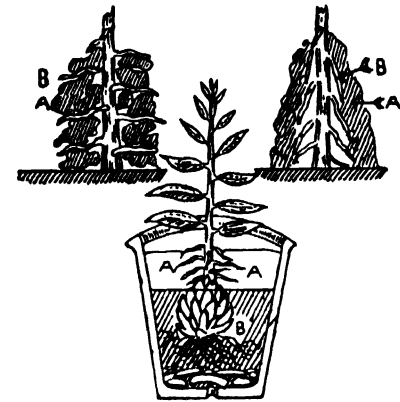
LILIUM SPECIOSUM
By E. F. Brickdale

main it may be said of them that they are easily grown, but they are not entirely without their likes and dislikes, with which the prudent grower will take care to make himself acquainted for their and his own benefit. Some like sun, and others shade. A few, while robust and hardy, do best when planted in such a position that they have spring shelter for their young growths. Some do best in peaty and others in loamy soil. These peculiarities will be pointed out in the present notes; but first a few general remarks.



POTTING

A, drainage; B, bulb in soil; C, space for topdressing.



TOPDRESSING LILIUMS

Top Left-hand Figure: Right Method.—A, lumps of turf; B, stem-roots. Top Right-hand Figure: Wrong Method.—A, fine soil and lumps pressed down carelessly; B, stem-roots broken. Bottom re.—A, A, space to be topdressed; B, original compost.

Liliums that are to be grown in pots for greenhouse and conservatory decoration should have a relatively deep and narrow pot provided for them, because they differ from most bulbs in producing a mass of roots from the growing stem, just above the bulb, and there should be space for putting on top soil when these roots come. Such pots are made, but owing to the inconvenience of having flower-pots of different shapes and odd sizes, they are not often used. If an ordinary flower-pot is employed the grower must provide for the stem-roots in one of two ways: by putting the bulb very low down in the pot, or by potting at the usual level and placing a high collar inside the rim of the pot when the time arrives for applying fresh soil. The latter is the better plan. It is not desirable to put the bulbs very low in the pots, because it brings them close to the drainage, which contains very little nutriment for the lower

roots. On the other hand, there is no objection whatever to an elevated ring at the top. It may be made of a strip of zinc, and may extend two or three inches above the top of the pot, thus permitting of quite a liberal addition of soil. The stem-roots will feed in it, and the plants will benefit greatly.

It is not every *Lilium* that is suited for pot culture. The huge *giganteum*, for instance, is altogether too forceful a grower. The commoner, hardy kinds, such as the Tiger Lily (*tigrinum*), *croceum*, and *chalcedonicum*, look best out of doors. But such refined Lilies as *longiflorum* (long-flowered) and its varieties, and *speciosum* or *lancifolium* (which forms the subject of one of the coloured plates), and varieties, are admirable for the purpose. The Madonna Lily (*candidum*), *elegans* (*thunbergianum*), and its varieties, and the Golden-rayed Japanese Lily (*auratum*), are often grown in pots with success. The potting should be done as early in autumn as the bulbs can be got, and the soil and general treatment may be the same as for Hyacinths. The bulbs of *auratum* purchased in autumn will be English ones, and if large, firm, and solid, none can be better. The imported *auratums* are much cheaper, but they do not arrive until winter or spring; and do not, as a rule, give such good results as the English bulbs. Perhaps the most popular Lilies for pot culture are the Easter or Bermuda Lily, which is a variety of *longiflorum* called *Harrisii*, and the variety of *speciosum* known as *album Kraetzeri*. Both are pure white, and are largely grown for market. It is well to pick off the stamens of the latter before the pollen becomes ripe, otherwise it will scatter and stain the flowers.

The most popular garden Lily is certainly *auratum*, and the florists and collectors have given us some beautiful varieties of it. The species, as is well known, has white flowers, with yellow stripes and red dots. In the variety *rubro-vittatum* the yellow stripes become crimson, and this is a very distinct and beautiful variety. *Wittei* is pure white, and *Virginale* is marked only by a faint

yellow stripe; both are exquisitely beautiful. *Platyphyllum* is distinguished by its broad leaves. The Golden-rayed Lily and its bevy of beautiful daughters do not enjoy a stiff, heavy, wet soil, nor do they care for sand; they like loam, and they like peat. They thrive best among *Rhododendrons*, if not overgrown, because not only does the loam-peat compost of which the beds are composed suit them, but the spring shelter is very grateful.

The magnificent *giganteum*, which may attain to a height of ten or twelve feet, is a very distinct Lily, with heart-shaped leaves. It loves a moist, peaty, or loamy soil. It is necessary to have a constant succession of bulbs coming on, because those that flower one year are incapable of blooming the next, and the offsets which they leave will not be strong enough to flower unless they are exceptionally well suited by the soil and site.

The most showy of the *Liliums* are the Turk's Cap (*Martagon*), the Panther (*pardalinum*), the Orange (*croceum*), and *chalcedonicum*. These are cheap, easily grown kinds, succeeding almost anywhere.

A few special sorts are *Brownii*, *Hansonii*, *Henryi*, *Humboldtii*, *Krameri*, *rubellum*, *sulphureum*, *testaceum*, *umbellatum*, and *Washingtonianum*. There are varieties of some of them, differing in colour from the parents.

In the case of the *Liliums* grown from home bulbs it may be taken as a rule that the earlier they are planted in autumn the better, in fact, as soon as the flower stems die back, because the bulbs begin to form new roots at once. It is particularly necessary in the case of *candidum*. With respect to imported bulbs, inasmuch as they sometimes get dry in transit, it is a good plan to embed them in moist cocoa-nut fibre refuse for a few days before potting or planting, in order to freshen them.

Liliums may be propagated by offsets, if these form, or by partially embedding scales taken from the outside of fresh, healthy bulbs in moist, sandy soil.

The plants do not escape enemies, and the fungoid disease which attacks candidum is only too well known. Change of ground, avoidance of richly manured soil, and the shaking up of the bulbs in a bag of dry flowers of sulphur, may all be tried as remedies.

The Lily of the Valley is not a *Lilium*, but a *Convallaria*, specific name, *majalis*. It is a modest little flower for so long a botanical name. We love the Lily of the Valley, firstly, because it is very pretty; secondly, because it is very sweet; and thirdly, because we can get flowers of it in the winter, and practically all the rest of the year as well. Science has come to the aid of the grower with this charming denizen of British woodlands. The lower part of the plant consists of a thickened stem, called a "crown," which contains the flowers and leaves, like the bulb of a Hyacinth. The large market grower takes a number of these crowns while they are dormant, and puts them in a store, which is kept at a low temperature. The cold is not extreme enough to injure the crowns, but is sufficient to keep them at rest, and they remain quiescent until they are put in a warmer place.

The home grower will not possess a cold store, and therefore cannot have Lilies of the Valley in flower for the greater part of the year, but he can buy crowns in autumn or early winter, and get flowers from them in about twenty days if he subject them to strong, moist heat. Unless very early flowers are wanted for a particular purpose a handful of the crowns may be put together loosely in a five- or six-inch pot, in soil similar to that advised for Hyacinths, and plunged in fibre for a few weeks, as recommended for those popular flowers. This treatment insures leaves and flowers coming together, whereas under hard forcing the flowers may come in advance of the foliage. One has to be careful in buying these crowns. Bundles of them must not be picked up at auctions merely because they are cheap, as they may be thin and pointed, in which case they do not contain flowers.



MADONNA LILY (*Lilium candidum*) AND ROSES
By Beatrice Parsons

What are known to dealers as Berlin crowns, and which are as thick as the little finger, generally bloom.

For late flowering in large pots, and also for planting out of doors, the "clumps" offered by dealers are excellent. They contain several crowns, some of which may bloom the first year and others the following one. A cool, shady position is desirable. The plants do not mind a light soil so long as they have shade, but they will not thrive on a sun-scorched sandbank. The varieties Victoria and Fortin are both superior to the common in size of bloom, if not in sweetness.

Ornithogalums are somewhat burdened with names—in fact, long names seem to "run in the family." For instance, three of the best-known species are called respectively umbellatum, arabicum, and longibracteatum. The first of these is the pretty, white, May-blooming plant, growing about a foot high, called the Star of Bethlehem. It is so well known by its popular cognomen that fortunately we can dispense with the botanical name. It would be well if the Arabian species also had a homely name to help it along, for it is a pretty thing, and fragrant withal. It is white, with a black central boss (the ovary), which gives it a distinct appearance. It is not quite hardy, and is best grown in pots. The third species named is a not uncommon window plant, and is conspicuous for its immense bulb, which stands quite above the soil. It has greenish-white flowers.

The Ranunculus is a tuber, strictly speaking, not a bulb, but it is one of the bulb-dealer's stock items. Perhaps he had more demand for it in years gone by than he has now, for once upon a time it was a "florist's flower," like "Bizarre" Tulips and "Flake" Carnations. It is not so now. Like the Verbena, it has fallen from grace. It is a brilliant flower, and embraces a great variety of colours, but it lacks freedom, grace, and suitability for cutting. It is, in short, a frigid beauty.

The tuber is a very singular structure, unlike that of any

other well-known "bulb." It consists of a number of claws springing from a flattish plate, which is the point from which the growth starts; the claws, therefore, must go downward. The tubers are procurable in autumn, and may be planted then or towards the end of winter, about an inch deep. If planted in autumn litter or bracken ought to be spread over the bed. They will thrive in most kinds of soils, but those growers who want to have them in perfection will take care to work the ground well, and to add leaf-mould, road grit, and loam if available, if the soil is very stiff. Several strains are offered by dealers, and the Turban and the Persian may be chosen, although the French are larger. Tubers can be bought in mixture, or varieties can be got under names. They flower in late spring and early summer.

Scillas are very modest flowers, but they have their uses. *Sibirica*, the blue Squill, is a pretty and serviceable little plant. It blooms, together with its white variety, in February. *Bifolia* is a charming little plant, which flowers in March. There are several varieties of it, including a white (*alba*) and a pink (Pink Beauty). The wild "Bluebell," or Wood Hyacinth, is a *Scilla*, and its specific scientific name is variously given as *nutans* and *festalis*. There are pink and white varieties of this also. It is an April bloomer. The Spanish Squill (*Scilla hispanica*), blue, and its varieties bloom in March. There are several different shades of blue, likewise red, rose, and white. *Peruviana* is a handsome May-blooming *Scilla*, with lilac flowers; there are blue and white varieties. They are not quite hardy, and if grown out of doors must have a sheltered place.

Tigridias are not largely grown, but one sometimes sees a bed of them in a park or botanical garden, where they set the lay tongue wagging. There are few flowers brighter and more glowing, and, on the other hand, few more fleeting. The *Tigridia* is here to-day and gone to-morrow. *Pavonia* and its varieties, *aurea*, yellow; *alba*, white; and *conchiflora*, deep yellow, are the best known.

BULBS

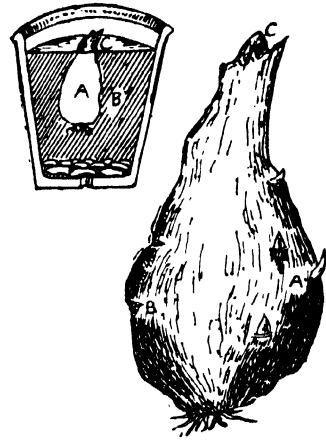
They must have a sheltered place and protection be left out of doors all the winter.

Tuberoses.—For culture in pots few plants of equally easy culture are more desirable than these, for they produce pure white fragrant flowers. Potting should be done as early in autumn as possible and successively to insure a prolonged supply of blooms. They should be treated similarly to Hyacinths.

Tulips.—Hardy, brilliant, easy to grow, the Tulip is one of our most valuable bulbs, and we shall reap a rich reward if we give it a little study and grow some of the best varieties in our gardens. It will give us a vivid blaze of colour if we grow some of the bright varieties in groups or masses, but it will also give us many delicate and dainty little pictures if we choose the softer-hued sorts, and grow them in selected positions with or without a carpet of low-growing plants. The Tulip-

“fancier” does not care for either a “blaze” or a “picture”; the only things that interest him are the marking and the form of the flower. This is taking

a somewhat narrow view, perhaps, but it must not be condemned unreservedly. The spirit in which a florist approaches a flower is not the spirit of the artist, but it has something to commend it. By setting up a high standard of flower beauty the florist has certainly been instrumental in the production of improved flowers. The fact that he does not know how to make the best use of the material when he has got it, only goes to prove that it takes more than one class of mind to make beautiful gardens. It is necessary for those who work for garden effects to recognise the limitations of florists, and it is particularly so in the case of



POTTING TUBEROSES

the Tulip specialists, because the show bloom is one of the least valuable of this genus for flower-garden decoration. It is a flower of splendid substance, beautiful form, and exquisite markings, but it is not very effective in groups. Those who love it do not grow it as a flower-garden plant really, although they grow it in the flower garden. They make a bed for it, preparing a special compost, if the natural soil of the garden is not of the best. This and all other classes of Tulips love a deep, friable, moist, but not water-logged soil. The fact that they are grown extensively on the sand dunes of Holland must not lead the Tulip-lover to suppose that they will give of their best in pure sand. There is not substance and fertility enough in such soil. The Dutch bulbs are good, but equally good, even better ones, are grown in Lincolnshire, Cambridgeshire, and Kent. The finest bulbs that we ever saw were grown on heavy loam in Kent. They were much larger than the Dutch bulbs, although not quite so clean and bright skinned. Apropos of this, it may be well to say that a clear, bright skin is not the chief standard of merit in a Tulip. The buyer should look first for relatively large size and solidity. The bulbs should be heavy in proportion to their size, and firm. Tulips will grow vigorously and flower gloriously in clay, provided that it is thoroughly friable; but clay in stiff, hard, yellow lumps is not to their taste. Stiff soil can be rendered friable by breaking it up two feet deep, and incorporating road sweepings, mortar rubbish, and ashes with it. The required condition may not come all at once—it certainly cannot be got by the mere waving of a rake—but it will come if perseverance, allied with knowledge, is practised. It is very important to learn when clay soil may be cultivated, and when it is best left alone. It should not be touched when it is very wet. A water-logged site is very bad for Tulips; the soil should be drained. The heavier the soil is in natural texture the less yard manure it will require. Generally a dressing of bone flour and sulphate of potash in equal parts, at the rate of



NARCISSI
By A. Fairfax Muckley

three ounces per square yard, turned in two or three weeks before planting, will be better than manure fresh from a yard or stable. In the case of light soil a dressing of natural manure, preferably from cowyards, will be an advantage.

There is no doubt whatever that, given good bulbs and well-cultivated soil, Tulips can be grown successfully in almost any garden, whether it be in town or country. The large, sound, well-developed bulb contains everything the grower wants—stem, leaf, and bloom; and it only remains for him to bring them out to the best advantage by providing suitable site and soil. Many people like to grow them in pots, and they succeed under the same treatment as Hyacinths, but three or five bulbs may be grown in a pot instead of one.

Tulips have two great advantages over their sister bulb, the Hyacinth: the growth is more graceful, and the period of flowering, if all the classes are taken into account, is a great deal longer. The latter is an important point. By making a suitable selection we can have Tulip blooms for fully three months. The season opens with a very early section called Duc van Thol, which is succeeded by the Early Dutch, both single and double; with the Darwin and the Cottage Tulips bringing up the rear. We might classify the sections as follows for outdoor flowering: *March bloom*, Van Thols; *April*, Early Dutch; *May*, Darwin and Cottage. The rearguard is the flower of the Tulip army. The Van Thols are pretty enough, and make nice little patches of colour among Scillas, but they only grow a few inches high, and have small flowers. The Darwin and Cottage sections have flower stems two feet long, surmounted by immense blooms.

Inasmuch as the bulbs are cheap, except in the case of special new varieties of the May-blooming section, the Tulip-lover will be wise to grow some of all these classes. He can buy and plant in October or November. It is desirable to plant before the bulbs show signs of growth at the apex. The old bulbs die

after flowering, but new ones form. If the soil is good the largest of the new bulbs will be strong enough to bloom the following year; the remainder will be little offsets that will require a year or two's time to grow to flowering size. It is well to lift the plants after the foliage has decayed, dry and clean the bulbs, and replant in autumn. If the plants are growing in positions where the decaying leaves are unsightly, or if the ground they occupy is wanted for other plants, the flower-stems may be broken off directly the blooms fade, and the plants carefully lifted and transferred to a reserve bed. This tractability on the part of the Tulips encourages the flower gardener to make groups of them in the front of his herbaceous borders, where they interfere with nothing, and make brilliant clumps of colour in spring; and whence they can be moved in early summer if desired.

Some of the species of Tulips are very beautiful, and must not be overlooked. The one shown in the coloured plate, *Clusiana*, with its charming rose-flaked flowers, is only one of several that are worth growing in flower gardens. There is a white variety of it, called *alba*. They are low growers and late bloomers, often flowering as late as June. *Billietiana*, yellow, is a much larger species, and also flowers late. A variety of this, called *Sunset*, is often included in catalogue lists of Cottage Tulips, and is a very fine thing indeed. *Gesneriana* is one of the noblest of the species, and bears huge red flowers in May. Among many varieties the pale yellow one, called *lutea*, is particularly fine. *Greigi*, a dwarf April bloomer, with red or red and yellow flowers, is a popular species. These are a few of the best, but the following are also good: *macrospeila*, crimson with black blotch, two feet high, a May bloomer; *patens* or *persica*, a dwarf yellow species, flowering in May; *sylvestris*, yellow, about eighteen inches high, blooming in May; *Batalinii*, dwarf, lemon coloured; *Leichtlini*, pink and white, dwarf; *linifolia*, dwarf, scarlet; *primulina*, dwarf, red and yellow; *retroflexa*, dwarf, yellow, petals curved

outwards; and vitellina, medium height, yellow. The last five are mid-spring bloomers.

With respect to the sections, the lists of varieties in the bulb catalogues are very long, and apt to be puzzling; we will therefore make selections from them.

MARCH BLOOMERS.

Duc van Thol, red and yellow.

„ „ scarlet.

Duc van Thol, white.

„ „ yellow.

One or two of the earliest of the Dutch, such as *Proserpine*, may be in bloom in a mild March.

APRIL BLOOMERS.

Single.

Artus, scarlet.

Bride of Haarlem, white, feathered scarlet.

**Brunhilde*, buff, white flames.

Chrysolora, yellow.

**Cottage Maid*, rose and white.

Crimson King, crimson.

**Joost van Vondel*, crimson, flaked white.

**Joost van Vondel*, white.

**Keizer's Kroon*, scarlet and yellow.

Lac van Rhyn, cherry red with white edge.

**Le Rêve*, pink.

**Ophir d'Or*, yellow.

**Pink Beauty*, pink and white.

**Prince of Austria*, orange.

**Proserpine*, dark, silky rose.

Queen of the Whites, pure white.

Thomas Moore, orange.

**Vermilion Brilliant*, scarlet.

**White Swan*, white.

Wouverman, claret.

Double.

Blanche Hâtive, white, early.

Couronne des Roses, rose.

Cramoisie Superbe, scarlet.

**Imperator Rubrorum*, scarlet.

**La Candeur*, white.

Mariage de ma Fille, crimson and white.

**Salvator Rosa*, rose.

Tournesol, red and yellow.

* „ yellow.

Yellow Rose, yellow, sweet.

MAY BLOOMERS.

Annie, yellow.

Bridesmaid, rose and white.

Buenaventura, scarlet and yellow.

**Dainty Maid*, lilac and white.

Gala Beauty, scarlet and yellow.

Golden Crown, yellow, crimson edge.

Golden Eagle, yellow.

**Herschel*, scarlet.

**Inglescombe Scarlet*,

Loveliness, rose.

Minister Tak van Poortvliet, salmon.

**Picotee*, white, rose edge.

Pride of Haarlem, rosy red.

The Moor, crimson.

**The Sultan*, maroon.

* Those marked with an asterisk may be chosen if the full lists are too long.

BEAUTIFUL FLOWERS

One may get some very fine Tulips from a good mixture of Darwins, and any one who cannot afford the price of named varieties of May bloomers should try this inexpensive source of getting good late-flowering Tulips.

What are termed florists' Tulips are late bloomers. As we have said, they are flowers for specialists rather than for flower gardeners; but there is no denying their great beauty when well grown, and therefore we will give selections of them. They are divided into four sections: Bizarres, Bybloemens, Roses, and Breeders. The first have yellow-ground flowers; the second white-ground flowers marked with purple; the third white grounds marked with red; the fourth are self- or one-coloured flowers.

<i>Bizarres.</i>	<i>Bybloemens.</i>	<i>Roses.</i>	<i>Breeders.</i>
Dr. Dalton.	Attraction.	Annie Macgregor.	Excelsior.
Dr. Hardy.	Bessie.	Heroine.	Glory of Stakehill.
Masterpiece.	Nulli Secundus.	Mabel.	Mabel.
Sir Joseph Paxton.	Talisman.	Modesty.	Sam Barlow.

Parrot and variegated-leaved are minor sections of Tulips which some bulb-lovers like to grow. The former is a quaint, yet gay section, consisting of some half-dozen distinct varieties. The latter is a replica of certain popular early Dutch varieties; that is, the flowers are the same, but the leaves are marked with yellow or white instead of being wholly green.



By A. Farfax Muckley

HARDY HERBACEOUS PLANTS

THE old style of flower gardening, with its ribbon borders and tender plants put out in beds late in May, is supposed by supporters of hardy flowers to have passed away for ever. A glance over some of the principal nurseries and market gardens in spring, or of the public parks in summer, would show how mistaken that supposition is. There are probably more Zonal Geraniums (*Pelargoniums*) grown in gardens at the present time than there were in the days when this flower was in the heyday of its popularity; but they have become commonplace, and are not much talked about.

Hardy herbaceous plants are now discussed and exhibited as tender bedders once were. We see group after group of them at the great flower shows. Geraniums may be exhibited by one nurseryman, and hardy plants by twenty. Well-to-do amateurs, who used to specialise in Geraniums, now vent their enthusiasm on Phloxes, Paeonies, Delphiniums, and Pyrethrums. We as little expect to see fashion cultivating ribbon borders as wearing crinolines and high stocks.

Is the change to be deplored? Assuredly, no. The cheerful old Zonal nobly played a part, and indeed plays it still. It is a bright, free-blooming, general utility plant—a sort of maid-of-all-work among flowers. But the combinations which it forms with its sister bedders, the yellow *Calceolaria* and the blue *Lobelia*, lack the interest and variety of associations of the finest hardy plants.

The tendency in flower gardening nowadays is to have an expanse of well-kept turf where geometrical bedding designs formerly existed, and to surround the grass with broad borders, filled with chosen hardy flowers. If the borders are as spacious as the size of the

garden will permit, are well cultivated, and are furnished with good, carefully selected plants, even the warmest supporters of the old régime will admit that they are superior, both in beauty and interest, to formal beds. They are attractive for the greater part of the year,

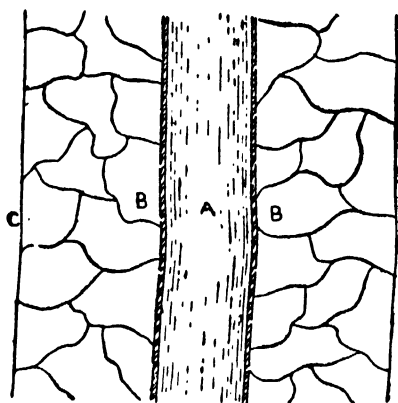
they give varied and ever-changing effects, and they yield large quantities of beautiful flowers for rooms.

The coloured plates that accompany the present notes show many beautiful examples of herbaceous borders; but before considering the plants which compose them individually, it may be well to offer a few general hints about the arrangement and cultivation of hardy flowers.

In the first place, it is wise to make borders as wide as possible.

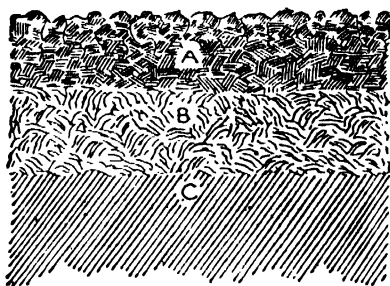
Some of the finest of herbaceous plants, such as Paeonies and Delphiniums, attain to considerable dimensions when planted in fertile soil, and crowding is apt to take place in a narrow border. But that is not the only trouble. When the different kinds are bunched, none shows to advantage. Their individual beauties are lost. Six feet should be the minimum width of a border; twelve feet will be much better.

Secondly, the ground for a herbaceous border should be prepared as thoroughly as a kitchen gardener would prepare it for prize Onions; that is to say, it should be dug to double the depth of a large-sized spade, and have a liberal dressing of manure incorporated. It should be dug in autumn or winter if possible, so



HERBACEOUS BORDERS

A, path; B, B, borders; C, C, boundary of borders.

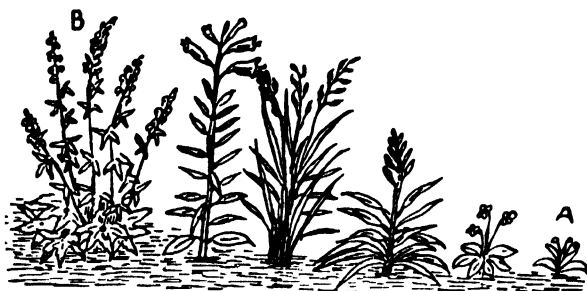


PREPARING GROUND FOR BORDERS

A, soil well broken up; B, soil generously manured; C, loosened sub-soil.

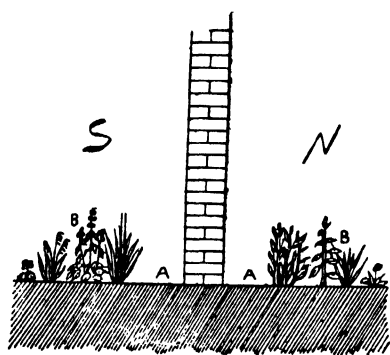
that it may have time to settle down before planting time comes in March and April.

Thirdly, and not least important, careful consideration should be devoted to the selection and arrangement of the plants. The interpretation which some people put upon the term "mixed border" is unconvincing. They "mix" with a vengeance. They cram in all kinds of plants, without any thought as to how they will harmonise with each other. And they put in three where there is only space for one.



END VIEW OF PLANTS IN BORDERS
A, front of border ; B, back of border.

Three cardinal points may be urged on makers of herbaceous



NORTH AND SOUTH BORDERS

N, north border ; S, south border ; A, A, path, or space between the plants and the wall ; B, B, plants in the borders. Suitable for different kinds of herbaceous plants for prolonging the flowering period.

borders. (1) To avoid putting in any plants without considering the proportions and colours of its neighbours ; (2) to allow sufficient room for every plant to display its individual characteristics ; and (3) to arrange the plants in groups which are beautiful in themselves, and likewise make a harmonious whole ; so that the border may be viewed in sections, or as a complete entity, with equal pleasure. Are these requirements difficult to provide? No.

It is true that they involve a little study, forethought, and restraint. It is equally true that they make demands on the artistic powers of the flower gardener which ribbon borders do not. But when we grant these things we concede nothing that is alarming or disagreeable ; indeed,

the contrary is the case, for acquiring a knowledge of good hardy plants, and learning how to arrange them, is a delightful study.

Our coloured plates do not show us wild tangles of plants, huddled together in dense, indistinguishable masses—dishevelled and incoherent. They show us beautiful groups of particular plants. And the lover of herbaceous borders will do well to take to heart the lesson that they teach, and which is here emphasised. It is far better to make up a border of a dozen different kinds of plants than to pack it with fifty genera. If the objection is raised that this



NEGLECTED CLUMPS

Large clumps, when left for a long time

entails a want of diversity, the answer is that such is far from being the case, because of the number of varieties which exist of all the principal kinds. Let the flower gardener take up a catalogue of hardy plants, and he may find anything between twenty and fifty distinct varieties of Phloxes, Sweet Peas, Paeonies, and all the leading hardy flowers.

Forethought is very necessary. It is hard for the amateur to realise that the little plants which he puts in in spring will, at the end of three months, have extended several feet. In the remarks on special plants which are to follow an idea of their dimensions will be given as a guide, and to further help the beginner the colours of the varieties will be mentioned also.

The arrangement of the plants in a series of groups, in order to secure similar effects to those seen in the coloured plates, really simplifies, rather than confuses, the task of making beautiful borders. If a flower gardener with little experience saw before him a long stretch of bare earth, and attempted to formulate a collective scheme for filling it, he would find himself perplexed and bewildered. Many do find themselves in such a dilemma, and in sheer helplessness and ignorance put in ("stick in " would be a pardonable phrase in such



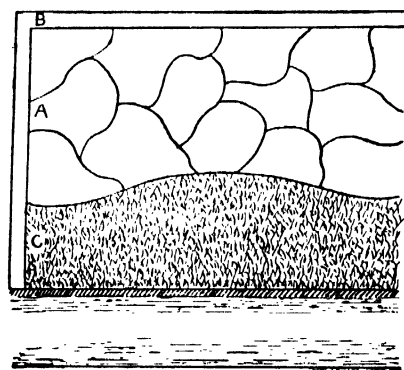
GLADIOLI AND AGAPANTHUS
By Beatrice Parsons

circumstances) everything that comes along, and in the order in which it presents itself. In such haphazard fashion are mixed borders often formed. But if the amateur marked out a given number of sites in the border, extending its whole length, and established a group on each, he would at once discover that he had a definite scheme to work on, which gave him the nucleus of a beautiful border forthwith.

The leading idea should not be to cover every square inch of surface at the earliest possible moment. That inevitably leads to ultimate overcrowding. Bare earth in spring and early summer is not in the least offensive, so long as it is not weedy. With clear spaces between the different groups the hoe can be plied freely and conveniently when the ground dries after every shower, to the swift destruction of weeds, and the immense benefit of the proper occupants of the border.

Later in the year confusion is often caused by the falling about of the growths of tall plants in windy weather. This should be corrected at once by staking and tying. In this connection the amateur may be advised to remember that tight "bunching-up" is undesirable, and that a tie near the bottom of a plant, and another near the top, will generally hold it more evenly and securely than one in the middle. Plants with flower stems which droop gracefully, such as Solomon's Seal, Foxgloves, and Gladioli, should not be held as straight and stiff as soldiers on parade.

It has been mentioned that spring is a good time for planting herbaceous borders, but it may be done in autumn or winter (except when the ground is hard with frost), if more convenient.

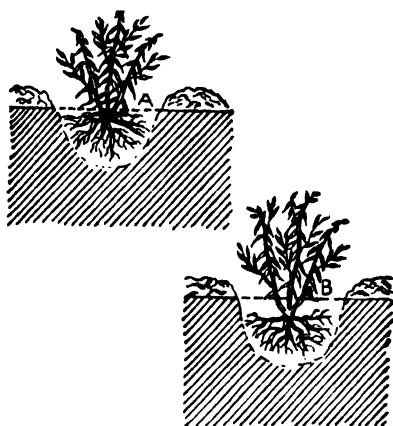


HERBACEOUS BORDER WITH TURF

A, border ; B, wall, or fence, or background ;
C, grass ; D, path.

Nearly all the different kinds may be propagated by division from October to April inclusive.

The amateur should not be afraid to impart a little individuality to his herbaceous borders. It is not often, probably, that he will see stumps, or pillars, or mounds of rock introduced into them, but that is no reason why he should not utilise them if he thinks fit. As a matter of fact, a few gnarled, lichen-covered, weather-worn tree boles, partially hidden in rambling Roses, Clematises, and Honeysuckles, form a quaint, interesting, and beautiful background



PLANTING

A, right depth to plant; B, too deep.

to Lilies, Delphiniums, Hollyhocks, and other fine border plants. Such pillars may be made the central figure of some of the border groups, and by breaking up stiff outlines, providing irregularity of height, and at the same time giving support to graceful and beautiful plants, they will add greatly to the charm of the border.

The flower gardener should not allow himself to be tied down by definitions.

“Herbaceous plants” has come to signify perennial plants, but there is no reason whatever why beautiful annuals like Sweet Peas, China Asters, Ten-week Stocks, *Phlox Drummondii*, *Salpiglossis*, and *Zinnias* should not be included. In their case, as in that of the perennials, the plants should be set in distinct groups.

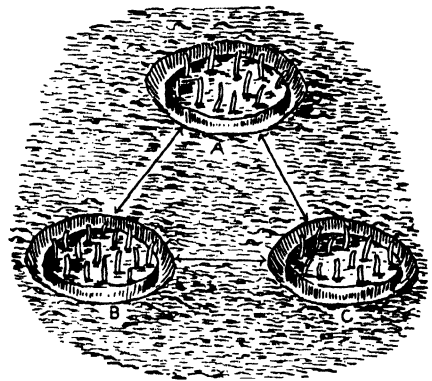
What, it may be asked, constitutes a “group”? Does it mean half-a-dozen plants, or does it mean fifty? Other things being equal, a large group will give a finer effect than a small one, but it must be remembered that the size as well as the number of the plants has to be considered. Here the effects of cultivation come in. In rich, moist soil plants will grow to double the size that they will in poor, dry ground. A group of six plants may be more

effective than one of twelve. Another item to be considered is the habit of the particular plants. Owing to its bushy, spreading nature, one healthy Paeony plant will fill up as much space as a dozen Phloxes, with their slight, upright growth. The number of plants to constitute a "group" may vary from three to twelve, according to the size of the border and the habit of the plants.

It is sometimes difficult to insure a fine and continuous effect in a small border without making two plantings, but the little trouble involved in this is so amply compensated by the results obtained that it should never be grudged. As an instance, it is not easy to get spring beauty in border groups without introducing bulbs, such as Tulips. Now these brilliant flowers become unsightly when the bloom is gone, because of the fading of the foliage. If they are left in the border they mar its beauty; if they are taken up and the ground left bare the gaps are noticeable. The proper course here is undoubtedly to form a reserve of good Asters and Stocks, which may be planted out when the Tulips fade. There is no need to wait until the latter have lost their foliage. They can be transplanted to a reserve bed directly the bloom is over, which, in the case of the late-flowering sections now so popular, may be the end of May or the early half of June.

The Ivy-leaved Geranium is another plant which comes in useful as a successional plant, and the first half of June is an excellent time to plant it out. A very pretty effect is produced if low stumps, over which the plants may ramble, are put in the border.

Even more valuable, because of the ease with which it can be raised in quantity from seed in winter or spring, and its long period



PLANTING IN THREES
A, B, and C, clumps.



CHRISTMAS ROSES (*Hellebores*) AND GLORY OF THE SNOW (*Chionodoxa*)
By Beatrice Parsons

Autumn and Winter.

Anemones, Japanese.

Asters.

Christmas Roses.

Chrysanthemums.

Dahlias.

Irises.

Michaelmas Daisies.

Anemones.—Many of the Anemones are dwarf plants, more suitable for the rockery than the herbaceous border, but there are two notable exceptions, the Crown and the Japanese Anemones. The former bloom in spring and summer, and the latter in late summer and early autumn. There are two special strains of Crown Anemones, the St. Bridgid and the Alderborough. If readers have seen groups of Anemones at the large flower shows with double and semi-double flowers as large as Roses, brilliant rose, pink, scarlet, blue, and mauve in colour, they have probably seen Alderborough Anemones. One can buy roots of these, or seeds. It would secure a succession of bloom if some of the roots were planted in autumn and others in spring. They might be buried about an inch deep. They grow about a foot high, and make the most beautiful beds and border clumps imaginable. The Japanese Anemone is a totally different plant, alike in habit, bloom, and foliage. It grows about three feet high, and the best varieties have single white, pink, or rose flowers about two inches across. It is very graceful and beautiful, and as it thrives in most kinds of soil, and spreads freely, it ought to be specially marked. It can be increased by division in spring. The Japanese Anemone is shown in one of the coloured plates.

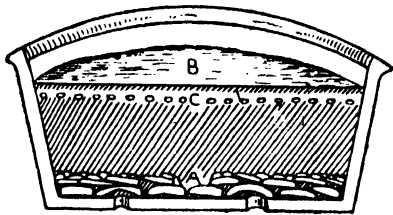
Antirrhinums (*Snapdragons*).—There are no finer or more valuable bedding or border plants than the Snapdragons. The flower gardener who finds himself disposed to look somewhat disdainfully on this old flower should make himself acquainted with the modern strains of the Scottish florists, which have large flowers of the most lovely colours. How can he effect this purpose? The cheapest way is to buy a packet of seed from one of the leading firms, and grow them for himself. He will find them very easy to manage. If

he sows his seed in a frame in March he will probably have the plants in bloom in July, and when once fairly started they will keep growing and flowering for several weeks—in fact, the period may easily run to months, for the Snapdragon is about the most continuous grower and bloomer of all hardy plants. He can propagate the best of the seedlings by cuttings.

Aquilegias (Columbines).—These are quaint as well as beautiful flowers, with their long spurs. They are deservedly popular, for they are graceful in habit, bloom freely, and have attractive colours. They are raised quite easily from seed, and it is a good plan to sow about the end of May for flowering the following year. Of the

several beautiful kinds *californica hybrida*, *caerulea hybrida*, *glandulosa*, and *chrysantha* are worthy of special mention. All of them can be got separately.

Asters, China, and Perennial (Michaelmas Daisy).—The China Aster is not recognised by botanists as an Aster at all; their Aster is the Michaelmas Daisy. If the China Aster had its full



SOWING SEEDS IN PANS

A, drainage; B, soil covering seeds;
C, seeds.

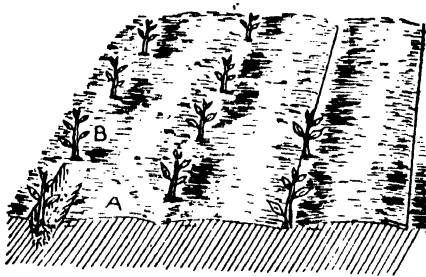
botanical deserts it would be burdened with the formidable name of Callistephus; let us hope that it will never get them. We have already seen how useful it is for transplantation to the border when some early flowering plant, such as the Tulip, has passed its best. The flower gardener can buy several quite distinct types, such as the Ostrich Plume, the Comet, and the Victoria. He will find all of these valuable, with the first named for choice. He can buy the seed in mixed or separate colours, just as he likes. An assortment of six separate colours will cost rather more than a mixed packet, but it will give the grower the advantage of being able to arrange the colours to his taste. In arranging plants from mixed seed he is working in the dark. He may sow in March or April, preferably, but not necessarily, in a frame or greenhouse. He will

be wise to sow thinly, to cover lightly, to prick the plants off (if raised under glass) about three inches apart into boxes before they become crowded in the seed pans, to avoid letting the soil get quite dry, and to give abundance of air in fine weather. The only remaining source of anxiety is the black fly, which attacks the plants in late spring, and will spoil them if it is not attacked in turn. Tobacco powder, or very hot water with an ounce of soda to the gallon, will kill it if used promptly. If the plants begin to get crowded in the boxes before the ground is ready for them they may be planted out nine inches apart in a reserve bed, from which they can be shifted at any time. The perennial Asters are magnificent for autumn blooming, and are the easiest of plants to grow, thriving in most soils, and being readily propagated by dividing the clumps, preferably when growth is starting in spring. There are many varieties, of which Bessarabicus, Framfieldii, and Riverslea (forms of the species *Amellus*), Mrs. Rayner and Wm. Bowman (forms of the species *Novi-Angliae*) and *ericoides* are a few of the best. *Alpinus* and *Novi-Belgii* are also good.

Begonias.—The most popular class of *Begonia* at the present day is the tuberous rooted, of which the flowers fade and the stems wither in autumn, but the tubers pass the winter in a dry store, in a dormant state, and start growing again in spring. It is not hardy, and is used extensively for greenhouse and conservatory decoration, but that is no reason why so brilliant and beautiful a flower should not be used for the summer decoration of the flower garden. The tubers may be started in a box containing leaf mould or cocoa-nut fibre refuse, and the young plants put out early in June. The modern strains are very fine, alike in the size of the flowers, the habit of the plants, and the brilliancy and diversity of the colours. The plants make gay beds and clumps in borders. *Begonias* are more fully referred to in the section devoted to bulbs and greenhouse plants.

Campanulas.—The fact that the Canterbury Bell is a *Campanula*

can hardly fail to prepossess amateurs in favour of this genus. When they have studied it a little they will find that it contains plants very little less valuable than the old favourite named. Some, such as *pulla*, *turbinata*, and *carpathica*, are quite dwarf; others, like the splendid double white peach-leaved *Campanula* (*persicifolia alba flore pleno*) and *glomerata dahurica*, are of medium height; while still others, such as the fine *pyramidalis* (which, however, is generally grown in pots) are nearly as tall as Hollyhocks. The *Campanulas* are mostly either blue or white. Some are annuals, others biennials, and yet others perennials. The first are best raised



PLANTING SEEDLINGS IN NURSERY BEDS

A, distance between the rows; B, distance between the plants in the rows.

from seed sown in spring, the second and third from seed sown in early June, or by division of the root-stocks.

Cannas.—Like tuberous *Begonias* and *Zonal Geraniums*, *Cannas* (*Indian Shot*) are grown extensively for both greenhouse and flower garden. They are extraordinarily brilliant flowers, some of the colours

being vivid in the extreme. The flowers are borne on long stems, which stand well up above the large green or brownish purple leaves, so that they are very effective in beds or clumps. They are easily raised from seed, but this is difficult to get of the best varieties, such as *Madame Crozy*, *Italia*, and *Austria*, and if it were the colours might not come true. The plants form tubers, which are lifted in autumn, stored under greenhouse stages, and divided in the spring. Divisions form plants which keep true to colour. *Cannas* love a deep, rich, moist soil.

Canterbury Bells.—The rise of some modern flowers has not caused old favourites like the *Canterbury Bell* to decline, nor is it likely to do so, considering how powerful its claims are. Its compact habit, great profusion of bloom, brilliant colours, duration,



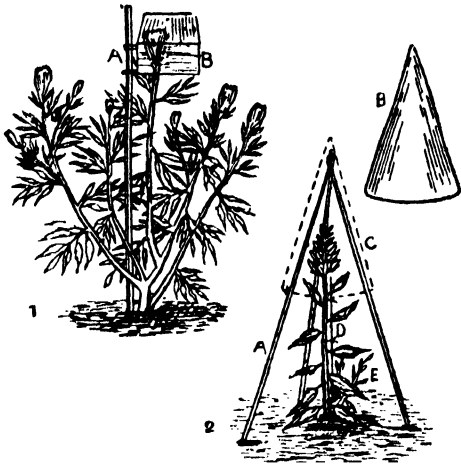
ORANGE LILY
By Margaret Waterfield

and cheapness (for several hundreds of plants can be raised from one packet of seed sown at the end of May) combine to render it indispensable. There are blue, rose, and white varieties, and there is a duplex-flowered form (*calycanthema*) which is commonly called the cup-and-saucer *Campanula*. No flower gardener of limited means can afford to ignore the Canterbury Bell. It is one of those things of which he should make a special note. It will give him striking beds and beautiful border clumps at a cost of a few pence. As fast as the flowers fade he will pick them off, and fresh buds will form in abundance. If people are disposed to be hypercritical, and to complain that the Canterbury Bell is a common cottage garden flower, let them remember that they can always give it individuality by special care in cultivation—thin sowing, planting out a foot apart in nursery beds for the summer, and rich, deep soil in its permanent position.

Christmas and Lenten Roses (Hellebores).—Outdoor bloom in the dead of winter is not so common that we can afford to ignore any plant which gives it. Still less can we do so when the blossom is so pure and beautiful as that of the Christmas Rose, *Helleborus niger*. We can have this lovely flower in all its virginal purity on our Christmas table, yet gathered from the open ground. It is, of course, a hardy plant, but gardeners often cover it with a small hand-light, to preserve the flowers from frost, and also to prevent them from being soiled by earth thrown up in rainy weather. In the Royal Gardens at Kew the clumps of Christmas Roses shown in one of the plates are not covered, but are planted among hardy ferns, which no doubt serve as a protection both against frost and flying grit. The plant will thrive in most soils, but prefers well-drained to stagnant ground. There is a large variety of the Christmas Rose called *maximus*, and another pretty one named *angustifolius*. The Lenten Rose is also a Hellebore, but a different species—*orientalis*. The flowers resemble those of a Christmas Rose in form, but give a range of

colours which the latter does not. The Hellebores may be propagated by division.

Chrysanthemums.—The Chrysanthemum is the most valuable of all indoor plants under glass in autumn, and very nearly the best of outdoor plants also, although the Dahlia is undeniably more popular, and the Michaelmas Daisy also presses it hard. It must be remembered that we not only have the varieties of



PROTECTING FLOWERS

1. Marigolds—A, stake; B, box with glass on top, fastened to stake to protect flower. 2. Phlox (or similar plant with spike)—A, stakes fastened together at top; B, cap to fit as shown by dotted lines C; D, plant and spike; E, young side-shoots to be removed.

the florist's Chrysanthemum to take into consideration in estimating the merits of the plant, but also the Ox-eye Daisy, *Chrysanthemum maximum*, and the tall, white-flowered plant generally grown under the name of *Pyrethrum uliginosum*, which is really a Chrysanthemum too. The Ox-eye Daisy is not a plant displaying variety of colour, but it is useful all the same, for it forms large clumps, and bears immense numbers of its great white flowers. There is a variety of it called King Edward VII. that is finer

than the type. Both this plant and the species *uliginosum* will grow in most soils, and are easily increased by division of the root-stock. The florist's Chrysanthemum is a superb garden plant for late summer and early autumn. Its beautiful flowers, in a great variety of colours, borne well above the leaves, light up the dull days of October and November in the most delightful manner. And they are not only beautiful on the plants, they are also valuable for cutting. One of the great merits of the plant is that it can be grown throughout the summer in a reserve plot, and transplanted to the border when in full bud, so long as a

good soaking of water is given before the shifting, and a cool, damp day is chosen. If the grower wants the best results he must not read "reserve plot" as meaning any poor, out-of-the-way, shady corner; on the contrary, he should provide rich soil, and give water and liquid manure in dry weather. Many people treat Chrysanthemums like the majority of border plants, that is, grow them on the same ground year after year, and only propagate them by division every two or three years. This is not wise, for the plants either die out altogether or become very weak. It is best to strike fresh cuttings every spring, as then vigorous young plants are got that are sure to bloom well. Among many beautiful varieties Rabbie Burns, pink; Nina Blick, bronzy red; White Quintus and Madame Desgranges, white; Horace Martin, yellow; Goacher's Crimson, red; and Framfield Pink, pink, may be named as particularly desirable. The Chrysanthemum as a pot plant will be dealt with fully in the section devoted to indoor plants.

Crown Imperial (Fritillaria).—See Bulb section.

Daffodils.—See Bulb section.

Dahlia.—See special chapter.

Delphiniums or Perennial Larkspurs.—Average height, five feet; flowering season, summer. Has the reader seen a plant with stems four or five feet high, the lower part furnished with broad, much-cut leaves, and the upper portion with bright blue flowers? If so, he has gone a little way towards making the acquaintance of the Delphinium or perennial Larkspur. It is a stately border beauty, and when one sees its tall spires of blue rising against a lichen-stained wall or grey brown larch pillar, with white Lilies at its foot, one's admiration goes out to it whole-heartedly. It is one of the plants which the flower gardener with an eye to beautiful border effects fastens on unerringly. Its possibilities suggest themselves at once. Fortunately it is not a difficult plant to grow. It thrives in any fertile, well-drained soil, and does not object to

clay, provided that the latter is well broken up, and free from stagnant water. The finest results are secured when it is planted in deep, well-manured loam, such as will give good Roses. The flower stems may then rise six feet high, half of which is clothed in large single or semi-double flowers. The finer the plants the greater the necessity for adequate staking. Without support the stem may be blown over in stormy weather. Staking must not, however, be done carelessly, or the spikes will not show to ad-

vantage. Care should be exercised to insert the stakes and affix ligatures in such a way that they are not obtrusive, and yet do their work. The stems must not be arched or bunched. The range of colour in Delphiniums is not great, but that is of no consequence, because they give us that rarest of colours, blue, in all shades, from palest lavender to deepest indigo.

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Other varieties are wholly white. The plants may be easily propagated by

dividing the roots in spring. There are many varieties, the best of which are sold under names, in the same way as Roses, Chrysanthemums, and other popular flowers. The following are beautiful varieties:—

Beauty of Langport.
Belladonna.

Blue Céleste.
Persimmon.

Princess of Wales.
Spinosa.

Doronicums (*Leopard's Banes*).—It would be over-straining language to describe the Leopard's Banes as an important genus in the same sense as Phloxes or Chrysanthemums. They are not that, but they are extremely useful all the same. They make very early growth, and the mere sight of their cheerful clusters of green leaves at the break of spring is inspiring and encouraging. Thick,



CUTTING DOWN DELPHINIUMS

A, old stems and faded flowers cut off at dark line; B, result, second crop of flower spikes.

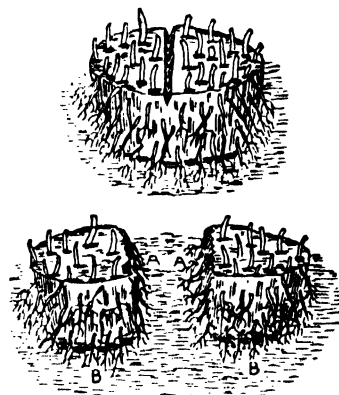


MAY FLOWERING TULIPS
By Margaret Waterfield

strong flower stems are thrown up, rising, in the case of the fine variety Harpur Crewe, nearly two feet high. The colour is bright yellow. We have few more "handy" plants than these *Doronicums*, for they will grow almost anywhere, they are hardly planted before they begin to flower, and they remain in bloom a long time. They are propagated by division.

Evening Primroses (Oenotheras).—The Evening Primrose is characterised by great profusion of bloom, and it is a bright border plant. The principal drawback is a tendency to straggle, but this is not so marked in one or two of the modern varieties. The species *biennis* and its variety *grandiflora* (which is often grown under the name of *Lamarckiana*) are both large flowered yellow plants, but seedsmen sell a variety under the name of *taraxacifolia alba* which is white. The most compact Evening Primroses are the species *fruticosa* and its variety *Youngii*, both yellow flowered. The latter is perhaps the most useful that we can have, as in addition to its closeness of growth it has the merit of producing a great mass of brilliant flowers. Evening Primroses thrive in most well-cultivated garden soil, and they do extremely well on cool, clayey land. They may be propagated by division, but can be increased in quantity more rapidly from seeds, which should be sown out of doors in late spring, the same as Wallflowers.

Forget-me-nots (Myosotis).—The little blue Forget-me-not is a cheap but precious flower, which we should be very ill-advised to banish from our gardens because it is "common." If it comes to that, Roses are "common," Sweet Peas are "common," all popular flowers are "common." We must grow the Forget-me-not for its own sake—for the thick cushions of sparkling blue



LIFTING AND DIVIDING CLUMPS

Roots A, A are not broken when a fork is used ; B, B, outside fibrous roots preserved.

which it forms—and also for its value in spring beds, associated with bulbs. Once upon a time the flower gardener was content to have bare ground among his Tulips; now he likes to carpet it with low-growing, beautiful things, such as Arabises, Aubrietias, double Daisies, and Forget-me-nots. The last named form a charming groundwork for white and rose Tulips, and whether the bulbs be early or late bloomers, the Forget-me-nots are likely to be in flower at the same time, as they begin early, and go on flowering all through the spring. They love a cool, moist, partially shaded spot, and when they get a home quite to their liking they spread with great rapidity, little dots of plants becoming broad clumps in the course of a few days. Not the least of the good points of this flower is the ease with which it can be raised in large quantities from seed. All that has to be done is to sow in rows far enough apart to permit of running a hoe between them about the end of May, thinning to prevent overcrowding, and planting out in autumn. One of the best of the species is the deep blue, dwarf-growing one called *dissitiflora*, and it has two good varieties in *Victoria*, blue; and *alba*, white. *Sylvatica*, the wood Forget-me-not, and *alpestris*, the rock Forget-me-not, are also extremely pretty. Readers who have cool, shady banks in their gardens should not overlook the Forget-me-not. It is charming in association with the white American Wood Lily, *Trillium grandiflorum*.

Foxglove (Digitalis).—We think of the Foxglove as we think of the Brompton Stock and the Hollyhock—favourite old garden flowers, not perhaps in the very first rank, and yet almost indispensable. We like to turn the Foxglove into something approaching a wilding—to let it establish itself on those undressed outskirts of the garden which have a way of looking so much more charming, in their best moments, than the more finished portions. Rising, perhaps, from a cool base where Violets, Ground Ivy, and Primroses sparkled in spring, footed with clumps of Honesty, and

surrounded with a foam of Ox-eye Daisies, the tall, arching spikes, with their load of bright bells, have a most cheerful and informal appearance. But the Foxglove is quite good enough for the best border, ruffling it among Lilies, perennial Larkspurs, Phloxes, Irises, and all the other great "stars," and holding its own right well. If strong plants are grown in good soil the Foxglove may throw up flower stems seven or eight feet high, and consequently it may be utilised for the back or centre of groups. The florists have not raised a large number of varieties of Foxgloves, to be sold with alluring descriptions and under special names; and this relieves us of a difficulty that is often acutely felt. We have not to pick and choose among sorts, but simply to get a packet of mixed seed, and sow it out of doors about the end of May. Where we are raising plants for special borders we may follow the orthodox plan of sowing in drills, setting out in a spare plot, and planting in autumn; but where we are providing for the semi-wild parts it will suffice to mix the seed with soil and fling it about broadcast. Some may perish, but it is probable that enough will grow to give as many plants as are required.

Gaillardias.—The *Gaillardia* is not so familiar in our gardens as the Foxglove, but it is rising in popularity very rapidly, principally, no doubt, owing to the improved forms which the seedsmen have raised, and which can be grown as easily as Snapdragons. The colours are principally shades of red and yellow. They are not vivid, but the markings are bold, and the great, round flowers are very handsome. Well-grown plants are very attractive in the border, and they are quite distinct. Some of them are annuals, and these are best raised from seed. The perennials can also be so propagated, but they are generally increased by division, or by striking cuttings.

Gladioli.—The *Gladiolus* is one of the most beautiful of late summer flowers, and if it just falls short of a place in a select dozen of the best flower garden plants, it is not from any want

of charm in the flowers, but because of a certain lack of freedom in growth, which prevents it from giving those large decorative effects which modern flower gardeners seek. It does not form huge masses, surmounted by great lustrous flowers, like the Paeony. It does not uprear lofty spires like the Delphinium. It does not spray itself in clouds of brilliant blossom over arches like the Rose, or form dazzling columns like the Sweet Pea. It is a neat, somewhat close grower, with sword-shaped leaves and arching flower stems closely studded with funnel-shaped flowers. But it is by no means an inconspicuous plant. The flower spikes are thrown well above the foliage, and in the most vigorous varieties they rise to a height of thirty inches or more. In suitable soil half-a-dozen corms set a few inches apart will form a fine clump.

The Gladiolus is what is called a florist's flower—that is, it has been specialised under distinctive varietal names, provided with a standard of excellence, and exhibited in special classes at shows. The old florists made quite a pet of it, and, naturally, they wrangled over it. They disputed over the proper pronunciation of the name. One was for Gladiolus; a second declared that this was wrong and that it should be called Gladiölus; a third heaped scorn on both parties and insisted that Glādiolus was correct. "Custom," said a philosopher, "is the legislator of languages," and custom decrees that our flower shall be called the Gladiölus.

The strait-laced florist is often, and justly, held up to ridicule for his narrow-mindedness, but we must give him credit for one thing at least—he does improve flowers. He has worked wonders with the Gladiolus. He is now more absorbed in the Rose, the Carnation, the Dahlia, and the Sweet Pea. But it matters nothing at all that Gladioli are not grown for exhibition so long as they increase in favour for flower garden decoration, and that they are certainly doing. The florist has served his purpose in showing us



WALLFLOWERS
By E. Fortescue Brickdale

what to strive for, the hybridist has given us an increased number of beautiful varieties, and—not least in importance—prices have come down, thus bringing the flower within the means of many who could not afford to grow it in former days, and permitting those who could only have a few to plant more largely. It is still too dear to become everybody's flower, and it is difficult to see how it can ever become as cheap as the Sweet Pea or the Daffodil, because raising plants from seed is a slow process, and although the plants are easily increased by offsets, they do not multiply rapidly. A few of the old species are cheap enough, notably the scarlet one called *brenchleyensis*, which only costs about sixpence a dozen. But the modern cross-bred sorts cannot be bought at anything like that price, the corms costing from sixpence to half-a-crown each.

A person who is particularly partial to Gladioli may form a special bed of them, and if it should only contain a dozen plants it will afford him great interest and pleasure, provided that the plants are well grown and the varieties are good. The character of the soil is an important point. It must not be stiff, cold, and damp with the unwholesome dampness of stagnancy. It must be very friable and warm, yet moist—warmly moist. How can we make the soil right? If it is naturally friable, we need only dig it deeply, and work a dressing of manure nine or ten inches below the surface. If it is stiff clay we must break it up eighteen inches deep, and dig in a liberal dressing of road grit, wood ashes, and mortar rubbish. We may also work in superphosphate of lime or bone dust at the rate of four ounces per square yard. This treatment will quite alter the character of the soil, making it warmer and more fertile. Gladioli lovers need never be afraid of growing the plants on clay, provided that they are prepared to take the little trouble involved in adopting the suggestion here thrown out, for the plants will thrive admirably on it.

Spring is a good time to buy the corms, and they can be purchased from almost any florist, seedsman, or bulb merchant. *Brenchleyensis*,

Colvillei, and some other species can be bought with Hyacinths and Tulips in autumn, and planted then. The first named is a really valuable flower garden plant, on account of its vigorous growth, hardiness, cheapness, and brilliant colour. Colvillei and the white variety are generally grown in pots, particularly the latter, which is a highly popular greenhouse plant. The corms of the fine cross-bred Gladioli are not generally harvested early enough in autumn to be sold with the Dutch bulbs, and in any case it would not be wise to subject such relatively expensive things to the rigours attending a winter sojourn in the open ground, because they keep perfectly sound and dormant in a dry, frost-proof store. Tulips and other bulbs will not remain dormant throughout the winter: they will begin to grow in autumn, and hence the necessity for early planting. The Gladioli corms may be covered with two inches of soil. When growth decays in the autumn it may be cut away, and the corms lifted; it will probably be found that a new corm has formed on the top of the old one, which is decaying. If this is the case, the old corm may be thrown away and the new one stored until spring. Should any small offsets have formed, they may be collected, stored, and planted in a nursery plot in the spring, to there increase in size, and eventually become of flowering size.

The beginner is often perplexed when, in turning to price lists, he finds various sections of a particular flower, the differences between which he does not know. In the case of Gladioli, for example, he may find them offered under the names of Gandavensis, Childsii, Saundersii, purpureo-auratus, and so on. It is really hardly worth his while to charge his mind with the distinctions, for even specialists are hard put to it to define them nowadays, so much have the sections been intercrossed. The person who buys a selection of good Gandavensis varieties will certainly be on the safe side, for they have the special merits that he wants—vigorous growth, and rich, varied colours. He will admire them on the plants, and he will admire them when, having given a tardy, reluctant consent to a young spike being

cut and placed in water, he sees the buds unfolding in succession day by day from the base to the tip. Its lasting beauty in a vase of water is one of the greatest of the charms of the *Gladiolus*. It is not uncommon for one to be a really beautiful object for three weeks.

The following are good varieties of *Gladioli*:—

Agrilus, salmon pink, yellow eye.
Commandant Marchand, ruby red.
Duchess of York, white and lilac.
Enchantresse, lilac rose.
Formosa, rose.
Grand Rouge, crimson.

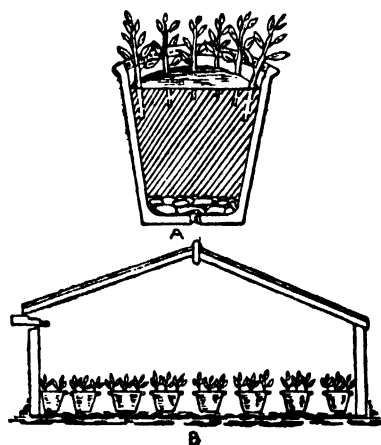
Hadrian, pink, white centre.
L'Incendie, cherry red.
Marie Thérèse, creamy white.
Mary Anderson, mauve.
Pascal, rose, white centre.
William Kelway, crimson, white spots.

Hollyhocks.—The Hollyhock, *Althaea rosea* of botanists, must be classed with the great flowers of the past. About half-way through the nineteenth century it rose on a wave of popularity. It was one of the elect, one of the handful of special things that we dignify as “florist’s flowers”—that phrase which has so little meaning to the outsider, and is so full of significance to the professional horticulturist. The Hollyhock was grown in nearly every garden; it was a recognised exhibition flower. Then, suddenly, came a terrible *débâcle*. It was brought about by a fungus, called *Puccinia malvacearum*, which first attacked wild Mallows, and then spread to the stately garden Mallow—the Hollyhock. There were no half measures in the operations of the fungus. It came, it saw, it conquered. It did its maleficent work with startling rapidity. It spread all over the country like a swift and deadly pestilence. A few weeks, and the Hollyhock was practically “wiped out.” Its lovers were in despair. A few cheerful spirits prophesied a swift resurrection. In the somewhat grandiose words of one writer of former days: “The eclipse is but a paltry shadow that for a season blots the sun from the heavens. We may reasonably hope to see the Hollyhock once more in its proper splendour, the noblest occupant of the country garden.” Alas for the prophet! After more than a quarter of a century the shadow still remains. Even if the fungus had lost its violence, or some

simple and inexpensive remedy had been found for it, the old Hollyhock would probably never have regained its place. A fallen flower rarely rises again—note the Auricula, the laced Pink, the Verbena. A limited number of people remain faithful to it, but their numbers gradually dwindle. Other flowers rise to take its place.

If, however, the Hollyhock is not the great favourite that it was once upon a time, before the Puccinia came down upon it, it is still grown with moderate success in many gardens. People do not pay high prices for special varieties as they used to do; they dare not

take the risk of it. But they still like Hollyhocks well enough to try their luck with them from seed, the cost of which is small, and entails no serious loss if the plants die away. There is a general opinion, indeed (an opinion not altogether groundless) that seedling plants are less severely attacked than special varieties struck from cuttings. Hollyhocks can be raised from seed just as easily as Canterbury Bells, and may be treated in the same way, being sown out of doors in late spring, transplanted, and



PROPAGATION BY CUTTINGS

A, cuttings in a pot; B, pots of cuttings in a frame.

flowered the following year. It is possible to bloom them the first year, but this necessitates sowing the seed under glass in February and pushing them on in pots. There was, perhaps, too much "pushing on" of Hollyhocks in years gone by. When new varieties were valuable they were propagated rapidly in heat by means of grafting, and it is possible that the constitution of the plant was thereby impaired. Be that as it may, we cannot err by giving *Hollyhocks natural treatment now*.

The finest plants are secured by planting in deep, heavily-manured soil, but the prudent grower may well sacrifice some degree of luxuriance in order to get harder, healthier growth; and to



this end he may decide to manure moderately. He will, however, deepen his soil thoroughly, otherwise he may find himself at the other extreme, and have such poor, weak, puny plants that handsome flower spikes are impossible. The Hollyhock does not care for a hot, dry, shallow soil. It loves a deep, cool, moist medium. Give it a sunny position, however, by all means. Heavy shade from overgrowing trees is bad. If its requirements are met it will probably push up flower stems six to eight feet high, packed with single, semi-double, or double flowers, in a great variety of colours.

The appearance of the fungus is shown in the presence of small reddish, raised spots on the leaves, which are followed by the shrivelling and falling of the foliage, and the death of the plant. The spread may be checked by promptly picking off the affected leaves, and immediately spraying the plants with "Bordeaux mixture," which may be prepared as follows:—

RECIPE FOR BORDEAUX MIXTURE.

(1) Dissolve one pound of bluestone (sulphate of copper) in a little water in a wooden or earthenware vessel.

(2) Slack one pound of freshly burnt quicklime in another vessel.

(3) Stir the lime-cream and pour it, together with the bluestone solution, into a vessel containing ten gallons of water.

(4) Stir the whole mixture, and hold a steel knife blade in it for a few moments. If the steel should discolour, add more lime-cream. If it remain bright, the mixture is safe.

The mixture should be quite free from lumps. It is best applied through a spraying syringe, that spreads it in a fine, dew-like state, in which condition it adheres. When applied through the rose of an ordinary syringe the liquid falls in a comparatively heavy shower, and runs off quickly. The application may be repeated if necessary.

*Iris*es.—One of the most richly painted of our garden flowers, the Iris also presents us with great diversity of height, habit, and cultural requirements. It is an indication of the change in popular taste in respect of flowers that while nowadays the Iris has special books devoted to it, the index of the original edition of a famous standard work does not include it, although we find under "I" *Itea virginica* and other insignificant things. The charm of the Iris is irresistible. It appeals by grace and quaintness of form, hand-

some foliage (evergreen in some classes), beautiful colour markings, perfume—by everything that makes a plant valued by lovers of flowers. Attention is arrested in the first place by the beautiful blooms of the bolder forms; it is retained, and developed into a lasting affection, by the dainty loveliness of the smaller kinds.

We cannot think of hardy flower gardening without thinking of Irises. They stand forth as among the most valuable of border flowers. We can specialise them if we like, and they are at least as well worthy of it as Dahlias and Carnations. If we do we shall find them as full of interest as they are of beauty. Some of the exquisite gems of the bulbous and cushion sections will require a little "mothering" at times, others are as hardy as Savoy. The "Flag" class will grow almost anywhere. If not so fine in bloom on a dry, hot, town bank, amid impure air, as in the deep, cool clay of a country garden, they at least appear quite as happy. The Japanese section, which is known as *Kaempferi* and *laevigata* (the latter is the name now used by botanists, although tradesmen still cling to the former), has opposite tastes. It never does itself real justice except in moist, cool places. It loves the humid surroundings of a pond side. When quite at home by water it makes huge clumps, and throws up stems a yard high, surmounted by flowers as large as breakfast plates, gloriously painted with rich and beautiful colours. We shall find exquisite beauty among the bulbous Irises, most of which are lowly growers; indeed, if we had no other class but this the genus would still be valuable. Several are winter bloomers, and that in itself is a powerful recommendation. To have flowers so lovely as those with the Aconites and Snowdrops is something for which to be grateful. Yes, an Iris collection, including the best representatives of the most valuable classes, would be indeed a feast of interest and pleasure.

We may, however, get immense gratification from Irises without specialising, merely cultivating them as border flowers. The Flag

section, or German Irises, will be found particularly valuable for this purpose, on account of their vigorous growth and large, brilliant flowers. They are what are termed rhizomatous plants—that is, the rootstock consists of a mass of hard, elongated, tuber-like swellings called rhizomes, which are really creeping stems, thickened and hardened, and with the power of emitting buds and roots. The sword-shaped leaves spring directly from the rhizomes. When the plants have been established in the same place for several years the rhizomes increase until they form a thick mass, part of which protrudes through the soil. Naturally the earth has become very much impoverished, but the clumps will grow cheerfully, and throw up flowers every year, without the least attention. Perhaps this is a drawback in one sense, because it leads people to suppose that the plant requires no cultivation. If it does not actually need it, it is greatly benefited by it, as any one will find who divides his clumps occasionally, and replants in deep, rich soil. The Flag Irises may be divided or planted at any time in the autumn, winter, or spring. Among many beautiful varieties the noble lavender-coloured one called *pallida dalmatica* stands supreme. Its huge flowers are a mass of glistening, shimmering beauty. *Gracchus*, *L'Innocence*, and *Madame Chereau* are three other beautiful varieties belonging to this section.

The cheapest, and not the least beautiful, of the Irises are the two sections called respectively English and Spanish. The latter is just about as cheap as a common *Crocus*, and far more beautiful and valuable. When we can buy a plant like the Spanish Iris for about twopence a dozen, it is not a case for hesitation, but for prompt decision to plant, and to plant largely. We can grow it in pots, too, if we like, the same as *Hyacinths* and *Tulips*. Spanish Irises are quite as easily grown as those popular flowers, and impart considerable diversity to a greenhouse or conservatory. Both the English and Spanish Irises are bulbs, and may be bought from the bulb merchant in October, like *Daffodils*. They

thrive in almost any fertile soil if planted about two inches deep. It is the most economical to buy them in mixture, and, except when a complete collection of Irises is being formed, it hardly seems worth while to grow them under names; but they can be purchased distinct if desired.

Then there are the Cushion Irises. These are a distinct and remarkable class. The species called *Gatesii* is one of the most perfectly beautiful things in the whole world of flowers. The ground colouring is cream, but it is spangled over with silver, and covered with a silvery venation. A yellow fringe or "beard" completes one of Nature's most exquisite and dainty colour schemes. It would be well if we could say of it, as of other Irises, that it is very cheap, but it is still too scarce to be low-priced. An equally remarkable "cushion" is the Mourning Iris, *Susiana*. This has a colouring all its own. Closely surveyed, the ground is seen to be of a greyish shade, but it is so heavily netted with dark chestnut brown that the general effect is sombre. It is a singular, almost weird, and altogether extraordinary-looking flower, yet it is in no way forbidding; on the contrary, it possesses a real charm, that does not quickly fade. After flowering, it is benefited by being protected with glass, which will focus the sun on it, and give it a thorough roasting, while throwing off heavy rain in wet weather. Experts recommend planting late in autumn, in order to discourage immediate growth, which might be injured by hard frost. Should mild weather cause growths to start after planting, some material should be kept at hand for throwing over them in frosty weather.

The Japanese Irises have flat flowers, and consequently differ considerably from Flags, which have upright segments ("standards") and drooping ones ("falls"). If somewhat less attractive in shape, they are equally rich in colour; in fact, the Japanese are among the most boldly painted of all Irises. It is not much use attempting to grow them in dry soil; they must have abundance of moisture if



July

Hughes & Harms 1899.

TULIPA CLUSIANA

they are to do well. Named varieties are procurable at a price, but this is really a class in which mixtures are likely to answer every purpose, and they are cheaper.

The small bulbous Irises are nearly all winter and spring bloomers. They are mostly hardy, but in view of the fact that the flowers are sometimes injured by frost, it is common to grow them in pots in unheated frames. The lovely violet and yellow, scented species *reticulata* is a delightful little winter gem, and happily it is quite cheap. *Bakeriana*, blue and white, agreeably perfumed, is charming in the extreme, but is more expensive. *Alata*, *Histrio*, and *Rosenbachiana* are three other early, dwarf, bulbous Irises which the Iris lover will probably add to his collection.

Kniphofias (*Tritomas*, *Torch Lilies*, *Red-hot Pokers*).—Neither the botanist nor the garden-lover was apparently able to satisfy himself at the first attempt in naming this splendid plant of late summer, and consequently it is burdened with a formidable list of cognomens. But it is not easily overwhelmed. Alike in habit of growth and colour it is strong, resolute, and bold. Like some human beings, it may be disliked, but it cannot be ignored. It has personality and individuality. It not only compels you to stop and look at it, but to declare your sentiments towards it outright, and at once. The *Kniphofia* stands no nonsense. You have got to take it as it is, or leave it alone. Happily, there is not much difficulty in deciding which side of the fence to come down upon. Your vote is an “aye,” and you march out of the division lobby with a proud sense of duty nobly done when you have ranged yourself among the band of “stalwarts” who support the gay *Kniphofia*. From the time when it first begins to grow in spring until it reaches the flush of bloom in September the plant is always handsome and distinctive. Its long, narrow foliage grows in a compact clump almost like an *Aloe*, hence the name *aloides* applied to one of the principal species—which, by the way, also enjoys two names, being sometimes called *uvaria*. The flower heads are upborne on long,

stout stems. They are well termed Torch Lilies, for they are often a foot long, and of a brilliant orange, salmon, or fiery red colour. A strong plant will throw up several, and when the plant is colonised, there may be scores (even hundreds, if it is planted in quantity) of the glowing flambeaux lighting up the garden. Such a picture as they then form is one not easily forgotten. For the matter of that, a single vigorous plant growing in a small bed in solitary state lingers in the memory. It may have as a neighbour a clump of Pampas Grass, the silvery plumes of which will attain to maturity about the same time as the glowing heads of the Torch Lily.

George Borrow described Spain picturesquely as the "Gonfaloniera of Rome." The Kniphofia might be called the Gonfaloniera of the flower garden. It must have a place in the herbaceous border, as well as on the lawn, and there it will form glowing rallying points. It must not be crowded up against a mass of Sunflowers, or half hidden in a tangle of Chrysanthemums, where its foliage will be obscured, and its vivid colours more than half killed. It must stand clear out, alert, striking, distinctive. It may be associated with other plants, such as Lilies and Delphiniums, dusky Michaelmas Daisies and stately Hollyhocks, but there must be no overgrowing, no muddle. It must be a case of careful grouping.

The Torch Lily is an easy plant to grow, provided that the soil is not dry. It loves moisture. Given a variety of soils (with which, however, few flower gardeners are favoured) a strong loam or clay such as would be likely to suit Roses should be chosen. If it is a case of Hobson's choice, and the soil is thin and light, steps should be taken to improve it by deep digging and liberal manuring; and this work must be done at any favourable opportunity in winter. The plants may be bought and planted in spring.

Neat flower gardeners dress their borders in autumn, cutting down old stems and removing decayed leaves; but they will be well advised to abstain from removing the old leaves of the Torch Lilies.

It is best to retain them as a protection to the crowns, and they will serve this purpose without offending the eye if they are drawn together into a cone and tied in autumn, thus enclosing the crown.

Flower lovers have become more and more keenly alive to the merits of the Torch Lilies these latter years, and consequently the number of varieties has increased rapidly. The different forms of the old species *aloides* alone would make a strong company. Some of them are varieties, others are hybrids, which have been secured by crossing *aloides* with other species. *Lachesis*, *Obélisque*, *nobilis*, *Pfitzeri*, *Saundersii*, and *Star of Baden-Baden* are beautiful sorts, of different colours, from yellow to red. They are vigorous growers, ranging up to four feet high. Of other species may be named *corallina* and its splendid variety *superba*, which grows about two feet high, and has scarlet flowers; *Macowanii*, also about two feet high, and with coral-coloured flowers; and *Rooperi*, four feet high, red. The last named is particularly useful, on account of its long period of bloom.

Liliums.—These, being bulbous plants, are described in the bulb section. As there seen, we must certainly introduce some of them in the herbaceous borders.

Lupins.—The Lupine (botanically *Lupinus*) was an old flower-garden favourite long before herbaceous plants had attained to the popularity which they now enjoy. Cottagers grew it, as they grew Pinks, and Hollyhocks, and Rockets. They bought the annual forms, with their great seeds as large as Beans, and grew them in borders with Larkspur, and Mignonette, and *Convolvulus*. Perhaps the Lupins have had rather a hard fight of it to hold their own with the great rush of splendid perennial plants that have now come, but there are one or two which have such outstanding merits that they retain favour. Among these is the Tree Lupin, *arboreus*, which grows about five feet high; and still more popular is the white variety of it called *Snow Queen*. This is a strong, upstanding plant, of great worth in the border. Another Lupin that enjoys

great favour is polyphyllus (many leaved) which grows about three feet high, and has blue flowers. It is a very handsome plant, and an accommodating one to boot, thriving in most soils, provided that they are well manured. There are several varieties of it, including a white (albus), a purple (Purple King), and a yellow (Somerset).

Although the great majority of the Lupins are best propagated by seed, division may have to be resorted to in the case of the special perennial kinds, and if so it should be done in spring.

Michaelmas Daisies.—The flower gardener whose nature is impressionable, and whose spirits fluctuate with the seasons and the weather, is apt to feel a shade of depression attack him when the summer flowers begin to fade. He does not love, as the Norsemen of whom Rudyard Kipling sings in *Puck of Pook's Hill* do—

“The dear, dark days of winter-time.”

When his borders are a mere sombre stretch of bare earth they contrast painfully with the beauty of the summer. The passing of the earlier flowers is a reminder, and a disagreeable one, that the period of bareness has to come. But it can be shortened (and this is a cheering thought for the impressionist) by providing plants of which the flowering period is naturally late. They are not a numerous band, but they are a very powerful one all the same, because they include Dahlias, Chrysanthemums, and Michaelmas Daisies. Each of these noble plants is a host in itself. It has vigour of growth, free blooming, and bright, varied colours. The Michaelmas Daisy is perhaps the most valuable of the three. It has been dealt with fully under Aster.

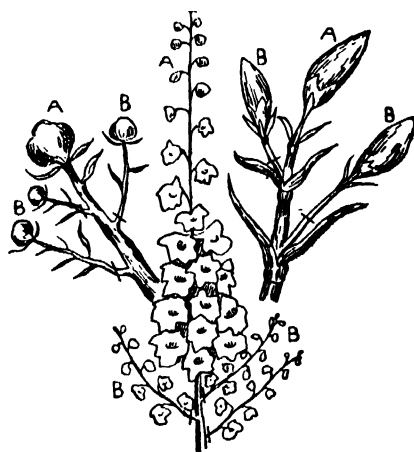
Ox-eye and Pyrenean Daisies.—These useful plants are Chrysanthemums. The Ox-eye Daisy is *C. Leucanthemum*, and the Pyrenean Daisy (also referred to under Chrysanthemum) is *C. maximum*. The Ox-eye Daisy grows about two feet high, and has white flowers; the Pyrenean Daisy is a little taller, and is also white. These great perennial Daisies have not sufficient



MICHAELMAS DAISIES
By Beatrice Parsons

variety of colour to rank with the most valuable of border plants, but they are very useful. They will grow freely in any deep, fertile ground, and are easily propagated by division. In most heavy, well-manured soils they will grow into huge clumps, and will remain a long time in beauty.

Paeonies.—By common consent the Paeony is accepted as one of the very finest of our hardy plants. During recent years the number of varieties has grown almost as rapidly as those of Dahlias, Chrysanthemums, and Sweet Peas. They now form a goodly band, rich in vigour, in size of bloom, in brilliancy and diversity of colour, and in perfume. Old impressions of the Paeony were of a somewhat gaudy flower, if anything over-bold. It was not regarded as a refined flower, like an Auricula or a Carnation. Probably some of the old-time florists would turn in their graves at the thought of Paeonies being grown to the exclusion of Bizarre Tulips and laced Pinks, but they certainly are. Perhaps the old-timer would forgive us, however, for our apparent backsliding if he could revisit the scenes of his triumphs with the flowers that are now dying, and see the wonderful improvements that have been made with others. When he saw Paeonies of the softest rose, the most delicate pink, the silkiest crimson, the purest white, Paeonies single and Paeonies double, Paeonies with the powerful perfume of a Damask Rose, Paeonies of the finest form and most exquisite refinement—in short, Paeonies full of beauty, refinement, and charm—his heart would soften, and he would take the flower to his bosom, as a treasure of great price.



DISBUDDING TO OBTAIN LARGE BLOOMS
OR SPIKES

Examples: *Paeonies*, *Delphiniums*, and *Carnations*.—A, crown buds to be retained; B, B, side buds and shoots to be removed at dark lines.

Any change which causes so exquisite a flower as the show Auricula to decline seems, on the face of it, to be for the worse; but we have to take a broad view of the question of public taste as it affects flowers. Laced Pinks, green-edged Auriculas, and Bizarre Tulips have declined, not because floral taste has grown coarser, and is unable to appreciate them, but because ideas of flower gardening have grown better. The flowers named have lost their place because they do not serve the purpose of modern flower gardening. The same florist who specialised Auriculas (which he probably did in a frame ground in a sacred corner of the garden) filled his beds and borders with Zonal Geraniums. He was not a flower gardener in the modern sense at all. He did not study flower gardening as it is studied nowadays, and consequently he did not understand it. He knew a great deal about the individual wants of one particular flower, and, *pari passu*, he thought that he knew everything there was to know about all plants, and surveyed the ignorant outer world with a benign tolerance.

Paeonies serve the purpose of modern flower gardeners—that is, of getting beautiful and continuous colour effects—admirably. The herbaceous species begin their good work from the very first, because the shoots which push through the ground in spring come with rich tints of chrome, and red, and brown. At a little distance a bed of Paeonies reminds the observer of a bed of hard-pruned Tea Roses when its shoots begin to open out under the genial influence of a kindly spring sun. There is the same soft, tender glow of colour a few inches above the earth, gradually spreading and deepening as the days pass. The illusion is at once so perfect and so beautiful that the flower-lover almost wants it to linger, even at the cost of losing the flowers.

When the Paeonies have attained to their full dimensions (and in rich, fertile soil well-established plants may spread five or six feet) the Tea Rose resemblance will, of course, have completely

disappeared, but in its place there will be the matured individuality of the plants themselves, with their strong stems, broad leaves, and gigantic blossoms. It is a great point in favour of the plants that the flowers are carried high above the leaves on long, vigorous stalks. Every bloom is boldly displayed. In this respect the Paeony scores over its late companion of the flower garden, the Cactus Dahlia, which shyly hides its flowers among the leaves unless well pruned. The Paeony will want neither staking nor pruning to cause it to play its part effectively. It is not a coy, clinging plant. It is sturdy and self-supporting, and it holds its head up with a sort of regal pride. One might call it a "state" plant—a figure of courts and levees, where proud and noble figures are seen.

The modern garden Paeony is divided into two great classes—the Herbaceous and the Tree. The difference is mainly in habit, and does not extend to character of bloom, as it does in Roses. Herbaceous and Tree Paeonies might be mixed in a group without the ordinary observer being able to distinguish them, whereas he could separate Tea and hybrid Perpetual Roses with ease. The Herbaceous Paeony loses its leaves and stems in the autumn, dying quite away to the root, like a Michaelmas Daisy, and growing again from buds on the underground rootstock in the following spring. The Tree Paeony does not do this. Its stems are harder and more woody, and they do not decay every year. It is true that it generally loses its leaves, so that it cannot be described as an evergreen. It might be designated as a deciduous (that is, leaf-losing) shrub, like a flowering Currant or a Lilac. Both classes have very large and beautiful flowers.

The first requirement of Paeonies is a deep, rich soil, and the second abundance of room. They rarely show their true character in poor, thin, dry ground. It is true that they will grow and flower, but they will not spread into great, broad clumps, and throw up large flowers by the dozen. The grower should aim at excellence,

and it rests entirely with himself as to whether he gets it or not. He should make stations for his clumps of Paeonies wide enough to admit three or four plants standing two feet apart. These stations should be dug two feet deep, and a thick coating of manure worked in a foot below the surface. Extra food can be given in the form of soakings of liquid manure in the summer, and annual mulches of manure on the surface. This is better than regular lifting and replanting, for which Paeonies do not care. They like to push long fleshy roots deep down into moist substrata, and keep them there.

The plants can be propagated by division, but for the reason just given this should not be done frequently. If more plants are wanted, it is better to buy fresh ones than to risk injury to an imperfectly established clump by taking it up and dividing it. Propagation can be effected by seeds, but this method cannot be relied upon for the increase of particular varieties which it is important to keep true. Trade growers often propagate Paeonies by grafting them on to stocks of common kinds, but this work is hardly within the scope of amateur flower gardeners. Such division or fresh planting as may be required should be done any time between October and March inclusive.

It would be very pleasant if we could add to all that has been here said with respect to the claims of Paeonies on the attention of flower lovers that they are cheap plants, but that can hardly be done, at all events as far as concerns modern sorts. These are not cheap. In connection with this, as with all other popular flowers, novelties are expensive. But one can buy very good Paeonies without depleting one's purse severely. The following varieties are good, and not costly:—

BEAUTIFUL SINGLE HERBACEOUS PAEONIES.

Amiable, cherry.

Bridesmaid, white.

Duchess of Portland, pink and white.

Rosy Dawn, blush.

Empire, purple.

Hecate, purplish rose.



GAILLARDIAS AND MICHAELMAS DAISIES
By Lillian Stannard

BEAUTIFUL DOUBLE HERBACEOUS PAEONIES.

<i>François Ortigat</i> , crimson.	<i>Novelty</i> , cream.	<i>Princess May</i> , cream.
<i>Mikado</i> , rose.	<i>Prince Prosper</i> , purple.	<i>Sir Henry Irving</i> , pink.

BEAUTIFUL TREE PAEONIES.

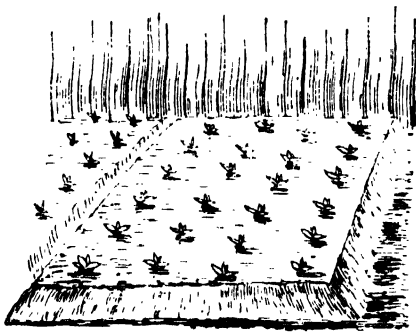
<i>Beauty</i> , rose.	<i>General Baden Powell</i> , red.	<i>Lady Sarah Wilson</i> , blush.
<i>Captain</i> , white.	<i>James Kelway</i> , carmine.	<i>Snowflake</i> , white.

Pansies.—Considering that it is a lowly plant, incapable of yielding those bold masses of colour which the modern flower gardener loves so much, and that it is scarcely compact enough in growth, or sufficiently free in bloom, to form good carpets and edgings (purposes for which its cousin the *Viola* is so admirably adapted), the Pansy holds its own remarkably well. If it is not quite in the front rank of hardy plants, it remains a decided favourite, especially in Scotland, whose sturdy florists raise beautiful new varieties every year, and exhibit them in such exquisite form that every beholder is filled with admiration. Perhaps the Pansy would be most accurately described as a florist's flower which is specialised by a certain number of trade growers and expert amateurs, like the Rose, the Chrysanthemum, the Carnation, the Sweet Pea, and the Dahlia. In the case of all such flowers there is a steady demand for new varieties every year—a demand which varies in extent with the different flowers, but which can be relied upon to make a trade in novelties lucrative. The Pansy has not so large a constituency as the flowers named, but it nevertheless enjoys a very fair one.

Southern growers who, on being worsted by the Scottish florists in a bout of Pansy-growing, declare that there is something in the humid climate of Scotland which particularly suits the plant, are probably right; but they go too far when they assert, as they sometimes do, that it cannot be grown successfully in the south. Provided that care is taken to give it a rich, cool bed, it will thrive and give good flowers. It ought not to be expected to succeed

in a shallow bed of hot sand, or in a few inches of poor, dry earth overlying chalk. In such soils special provision has to be made for it. But it will succeed with very little coaxing in moist, clay soils, even in the extreme south of England. In all cases where there appears to be reasonable ground for doubting success under the natural conditions that prevail, the Pansy lover will be wise to add a liberal dressing of cow manure to the soil, at the same time deepening it as much as it will allow. Further, he should spread a coating of cow manure over the bed when the hot weather comes on. If this is considered unsightly, it can be covered with

cocoa-nut fibre refuse. Good soakings of soft water, and of liquid manure, will help matters still more.



BEDS FOR SEEDLINGS

Raised beds for young plants of very rare or delicate kinds, where the soil is cold and clayey.

The work of the cultivator is easier if he plants fairly early—say by the end of March. At that period the nights, if not the days, are always cool; moreover, heavy showers may be expected. A liberal rainfall and cool nights between them are a great help in getting Pansies well estab-

lished. If planting is not done until May or June (and this is often the case), far more attention is needed to get the plants into free growth. They will probably need liberal watering, and shading during the hot sunshine of bright days.

Pansies are very easy to propagate. To begin with, there is the medium of seeds. Although the plants are perennials, it is quite easy to get them to bloom the same year that they are sown, provided that the seed is put in under glass by mid-March. But it is necessary to remember that seed of the named florist's varieties cannot be relied upon to produce flowers of the same colours as the parents. Seedsmen of repute sell very good strains of Pansy seed, and it may be sown half an inch deep in a pot

or box towards the end of winter. A position on a greenhouse shelf, or in a frame, will be suitable. When the seedlings begin to crowd each other they may be pricked off three inches apart in larger boxes, and when they touch again planted out of doors. They should be planted in a cool, moist spot to expedite their growth, then they are certain to become strong enough to flower at midsummer or soon after. The best of the seedlings, and any varieties which have been bought as plants under special names, may be propagated by cuttings in late summer or early autumn. It is not wise to strike them early, and so start them growing before winter, because nothing is gained by it, and they take up more room, need more care, and are more liable to injury from frost, than cuttings put in so late (say October) that they have only time to callus over and make a root or two before the winter. At the time indicated there are generally young, growing shoots on the plants, which will serve as cuttings. If the flowering is so profuse and late that there are no growing shoots, the bloom should be suppressed in September, and a top-dressing of fresh soil given to encourage growth. Bits about three inches long do quite well, and they may be put in just clear of each other in very sandy soil in a frame, or in a box covered with squares of glass. They are not likely to suffer in the winter, but a covering may be put over the glass in very severe weather. They ought to be examined now and then during the winter in order to see that aphid is not establishing itself on them. If any insects are seen they should be brushed off, and destroyed.

What are termed "tufted Pansies" by some writers and florists are *Violas*, and are dealt with under that name. The following are a few beautiful florist's Pansies:—

<i>A. M. Burnie</i> , yellow, crimson, and purple.	<i>Constance Steel</i> , rose and white.	<i>Henry Stirling</i> , yellow, crimson, and black.
<i>Constance Abercromby</i> , car- mine, yellow, and black.	<i>Duchess of Montrose</i> , yel- low and black.	<i>Mrs. R. Fife</i> , crimson and white.

Mrs. W. Sinclair, blue
and yellow.

Madge Montgomery, claret
and cream.

Nellie Curson, yellow,
mauve, and brown.

Niel Mackay, black and
yellow.

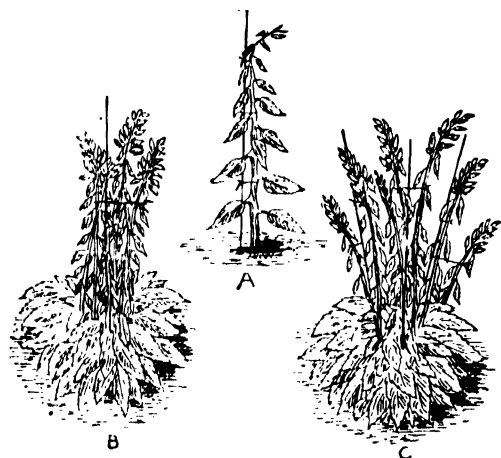
Robert M'Caughie, yellow,
rose, and violet.

Wm. M'Kensie, violet and
yellow.

Phloxes.—Average height of perennial border species under good cultivation, three feet; flowering season, late spring and summer. Average height of annual section, one foot; flowering season, summer.

The *Phloxes* are a most beautiful and valuable class of garden flowers. The perennial species are hardy, the annuals not quite

hardy. The former class might be subdivided into border and rock *Phloxes*. The former grow to medium height, the latter are quite dwarf. The perennial border *Phloxes* bear their flowers in bunches at the summit of slender stems clothed with narrow, lance-shaped leaves. They are of upright, compact habit, yet not stiff. In some of the finest modern varieties the flower heads are of great size—almost as big as *Hydrangeas*, in fact. The colours



STAKING PLANTS

A, how to stake single plants; B, wrong way to stake plants with several stems; C, right way to stake such plants.

are very beautiful. Though bright, they are not gaudy, but, on the contrary, are soft and refined. There are no more beautiful border flowers than the hardy herbaceous *Phloxes*, and no border can be considered complete without them. They appear in more than one of our plates. In association with Tobacco plants (*Nicotiana affinis*), with Japanese Anemones and Sweet Peas (the latter, by the way, affords a particularly fine example of the importance of studying the grouping of flowers), or with Asters and Sweet Peas, they are extremely useful and beautiful. These *Phloxes* are propagated by division and by root cuttings,



ASTERS, PHLOXES, AND SWEET PEAS

By Beatrice Parsons

preferably when growth starts in spring. They thrive best in light, well-drained, loamy soil. They do not like stiff, cold, undrained land. The flower gardener who has very heavy land should endeavour to dig a few spadefuls of decayed turf into the place where he intends to plant the Phloxes.

The annual Phloxes, varieties of *Drummondii*, are easily raised from seeds sown in an unheated frame early in April, or in the open ground at the end of that month. In either case the seeds should be sown thinly, and any thick patches of plants thinned. When put out they should be planted about a foot apart, and dusted with dry lime in order to baffle slugs, which are very fond of them. Many people credit these beautiful annuals with the responsibility for the decline of the *Verbena*. The flowers are supposed to resemble each other, and such superiority as there is between them to belong to the Phlox. There is certainly some sort of resemblance between *Verbenas* and Phloxes. Both have small, round flowers, with, in the case of most varieties, a clearly defined eye; but there is really no good reason for instituting a direct comparison between the two plants, and setting them in opposition to each other. The *Verbena* has not declined as a *flower garden plant to any great extent, but only as a florist's flower under pot cultivation. Both it and the annual Phlox should be grown, and both are best raised from seed.*

Seedsmen offer several strains of annual Phlox, but the *grandiflora* (large-flowered) is the best. It can be had in assortments of six or more separate colours, or in mixture. There is a strain about six inches shorter than the *grandiflora* called *nana compacta*. In this also we get a nice variety of colours, but the flowers are smaller.

Named varieties of annual Phlox are not offered, but there are plenty of the perennials. These might be divided into two separate sections, the first of which flowers in early summer, and the second in late summer and early autumn. They have originated

from different species, and are really distinct types. It is important to know this, and to make selections of each, because then a prolonged period of bloom can be insured. In the following list the letter "E" indicates early, and the letter "L" late varieties.

Atala (L), rose, white eye.
Attraction (E), white, red eye.
Coquelicot (L), orange.
Crépuscule (L), mauve, red eye.
Esclarmonde (L), lilac, white eye.
James Hunter (E), pink.

Ledru Rollin (L), violet, lilac eye.
Le Mahdi (L), violet.
Magnificence (E), rose, crimson eye.
Mrs. Forbes (E), white.
Mrs. E. H. Jenkins (L), white.
Zouave (L), magenta, crimson eye.

Poppies.—Every country visitor knows one member of the Poppy family, and that is the scarlet kind of the cornfields. Every flower-lover knows another member, and that is the beautiful Shirley Poppy. Many are familiar with the huge scarlet Eastern Poppy, which botanists call *Papaver orientale*. Thus we get by stages to a position in which it becomes apparent that the poppies can be accepted as familiar flowers. But do the majority of flower gardeners appreciate them at their full worth? And do they realise the great variety of material which the genus provides? It is to be feared that the answer to both these questions is in the negative. It is said of Poppies that they are very short-lived flowers. Their brilliance is admitted, but it is pointed out that the blaze of colour which they give is of very brief duration. This is at once correct and incorrect. It applies to some of the annual Poppies, but not to others. And, happily, it does not apply to some of the very finest of the forms—the huge double varieties of the Paeony and Carnation-flowered Poppies, which can be raised from seed just as easily as Mustard and Cress, come into flower in a few weeks, and remain in beauty for no inconsiderable period.

There is yet another criticism directed at the Poppies, namely, that the seedlings will not endure transplantation. This would be a rather serious objection if it were well founded, because it is not always convenient to sow plants where they are to bloom, but it appears to be a complete misapprehension. The writers are great

lovers of Poppies, and have grown them from seeds extensively. In the majority of cases they have transplanted the seedlings, and always with success. It is probable that the belief that Poppies will not endure shifting is due to the little care which some flower gardeners take in handling seedlings, letting them get crowded and drawn in the first place, taking them up when the soil in which they are growing is dry, and putting them out in a sun-baked spot without taking any precautions to get them established quickly. If they are kept thin in the seed rows, so that they become sturdy and well furnished with fibrous roots; are moved when about a couple of inches high, and with the soil sufficiently moist to cling to the roots; are planted in damp soil; and are shaded for a few days after shifting, until it is seen that they have started growing, they will transplant quite well. What is here said applies to the double annual Poppies, and also to such of the perennials as are raised from seed. As far as the Shirley Poppies are concerned, it is not worth while to attempt transplanting. They can be sown in patches in the borders, or broadcast in a bed. Very few plants are more beautiful on a sunny bank than a breadth of Shirley Poppies. The colours are brilliant and varied, and the almost transparent flowers glisten brightly in the sunshine. They should be sown thinly, and then left to nature. Some of the plants will come through later than others, but this fact will tend in the direction of continued flowering, and is therefore an advantage rather than otherwise.

The Eastern Poppy is a grand perennial of brilliant colour. The old plant is of a vivid orange scarlet, but it now has many daughters of different shades, and some are sold under names; indeed, things seem to be tending in the direction of specialising the plant. Whether this is worth while or not, readers must decide according to the degree of their partiality for it. If they grow named varieties, and find them good, they will be wise to propagate them by means of cuttings of the roots, in order to keep them true. The old plant, likewise the popular *bracteatum*, which is a brilliant

form of *orientale*, can be increased by seeds or division. The fine Poppy called *Papaver umbrosum*, and often offered in seedsmen's catalogues under that name, is scarlet, with black internal blotches. It is easily raised from seed, and is a good deal grown. A wise plan of dealing with it is to sow it at the end of May with Wallflowers and Sweet Williams for flowering the following year.

We must not forget the Iceland Poppies, which are as beautiful and valuable as any of the genus, although much smaller in growth. They are delightful little plants for border groups, and also for rockwork, and they come freely from seed. Orange, yellow, and white—all alike are bright, cheerful, graceful, free-blooming plants. The botanist calls them *Papaver nudicaule*.

Pentstemons.—A few years ago the Pentstemon (or Penstemon, it is often called, even professional horticulturists often omitting the first "t") was almost an unknown plant. It occupied a corresponding position in the flower garden to what the *Streptocarpus* did under glass. There were several species in the case of both plants, which were mildly admired, and spoken of in a casual way as "well worth improving." But for a time nobody made any particular attempt to improve them, and so they languished in obscurity. However, the inevitable hybridist appeared at last, and we began to get larger forms, with flowers of brighter colours. Once started, the work of improvement went rapidly on, because other florists, scenting profit, began to operate. Now we have a magnificent collection of beautiful varieties. Any one who is interested in comparisons might get seed of one of the old species, such as *glaber*, and grow it in a bed with some of the best of the modern forms, as sold under varietal names by florists.

He will then see what wonders expert cross-fertilisers are capable of accomplishing. It is, perhaps, to the Scottish florists that we owe the greatest debt of gratitude. They now have splendid strains. The bells are larger than the largest Foxgloves—in fact



FOXGLOVES AND POPPIES

By Anna Lea-Merritt

they are nearly as fine as prize Gloxinias. The colours, too, are rich and diversified.

The flower gardener who cannot afford a collection of the named varieties should get a packet of seeds from one of the firms that specialise in Pentstemons. If he sows under glass early in the year he will get flowering plants the same season. Or he may sow outdoors in May or June for flowering the following year. He is almost certain to get several varieties of the highest merit, and he can mark them, and propagate them by cuttings in October, in order to keep them true. It will be gathered that the Pentstemon is an easily managed plant. There are few more so. If any difficulty arises it is likely to be owing to over-flowering. It is a fault of the right sort, of course, but it is apt to be rather embarrassing, all the same. The plants may throw their whole energies into the formation of flower stems and the sustenance of the huge and brilliant bells that form thereon, so that when autumn arrives there is not a scrap of growth from which to make cuttings. Thus the grower finds himself in serious danger of being unable to increase his favourite varieties. He must exercise foresight, and if he sees that the plants are flowering hard, and making no leaf shoots, he must remove the flower spikes early in September, by which time they may have passed their best, and put a little rich, moist soil round the plants. This will probably have the effect of causing them to throw up fresh shoots, that may be taken off any time in October, or even November, preferably about three inches long, and inserted firmly in sandy soil in an unheated frame or glass-covered box. They will make little or no growth before spring, and it is not desired that they should. They will grow steadily, however, when the warm weather comes, and soon make sturdy plants.

A bed of Pentstemons is almost, if not quite, as beautiful as a bed of Gladioli, and it can be had at much less cost. There is a certain, though not a close, similarity between the two plants.

Both bear their flowers on long, gracefully drooping spikes, and present a great variety of brilliant colours. Many of the best Pentstemons have two clearly defined body colours, the one on the outer part and the edges of the bell, the other on its interior. These are extremely beautiful, and, as a rule, the more sharply the line of demarcation is defined the more pleasing the flowers are.

The plants thrive best in cool, rich, holding soil. They love moisture, and should not be expected to give of their best in poor, thin, dry ground. The wise cultivator will dig his soil two spades deep, and work in a good dressing of decayed manure. This he should do some time in winter, then the ground will be in excellent condition for planting in spring. But Pentstemons may be planted out in beds in which bulbs and other spring flowers have been grown. They can be planted quite well as late as June provided that care is taken to keep the soil moist, and to shade them for a few days if they show signs of flagging. For this reason seedling Pentstemons may be classed with Snapdragons and Indian Pinks as plants of more than annual duration which serve a useful purpose when treated as annuals. So great are their merits that it is perfectly safe to prophesy that they will grow in favour rapidly every year, both as flower-garden plants raised from seed and as special flowers cultivated under names.

Primroses and Polyanthuses.—These are hardly herbaceous plants in the ordinary acceptation of the term, because they are not leafless throughout the winter. On the contrary, they grow in mild spells, and are at their best in spring, when the majority of true herbaceous plants are just awakening from their winter sleep. But they come into the scheme of garden decoration of which hardy perennial plants generally form the backbone. Primroses and Polyanthuses may be introduced into herbaceous borders with great advantage, as well as into ordinary flower beds; and here comes in the great value of these most beautiful and accommodating flowers; they can be

shifted into beds and borders in autumn, when the herbaceous and annual plants are fading, and moved out again in the spring, when other plants are coming on. The seasons are reversed ; instead of Primroses and Polyanthuses growing in summer and resting in winter, they grow in winter and pursue a calm, easy, though not quite stagnant, existence in summer. In view of the great paucity of winter-blooming hardy plants, it seems astonishing that a plant which is as hardy as a hazel, blooms off and on the whole winter through, and flowers gloriously throughout the spring, should not be grown in every garden ; but the fact is that most people associate the Primrose with the yellow wilding of the woodlands, and have no idea that garden forms of great size, and with a wide range of beautiful colours, exist. When they do awaken to the truth Primroses will be as much in demand as Arabises and Forget-me-nots, both of which they greatly excel in variety and value.

The coloured Primroses have been immensely improved in recent years. We have larger flowers and more colours. We have cream, pale and deep yellow, pink, rose, lilac, carmine, crimson, and blue. We have, too, double as well as single flowers. Only a botanical eye can see in these lovely flowers a close relationship with the "rathe Primrose," and the lines of the poet—

"Welcome, pale Primrose, starting up between
Dead matted leaves of ash and oak, that strew
The lawn, the wood, and the spinney through,
Mid creeping moss, and Ivy's darker green,"

seem hardly appropriate to the brilliant garden flower, however admirable in relation to the "Primrose of the river's brim."

Every Primrose flower has its own separate stalk ; not so every Polyanthus. In the latter we find that the flower stalk subdivides, as it were, forming a cluster of short stems or pedicels, each of which is surmounted by a flower. Thus, when we have Primroses and Polyanthuses growing together—and they are almost

as natural associates as Mustard and Cress—we must call those in which the flowers are borne separately Primroses, and those with the flowers in bunches Polyanthuses. Both can be raised from seed, and if it be home-gathered it may be sown out of doors in a moist, fine seed-bed as soon as it is ripe. The plants can be treated like Wallflowers—that is, thinned, transplanted if they become very crowded (which, however, is unlikely), and planted out where they are to bloom in October or November. If seed has to be bought it should be got in winter, and sown under glass early in the new year. A position on a greenhouse shelf will suit it admirably, or a frame will do. The seedlings may be pricked off into other boxes when they become crowded, and planted out in a nursery bed in a cool, moist place in May or June. They will make strong flowering plants by autumn. The purchaser should make a point of getting his seed from a firm of repute, because the strains differ a great deal. Some seed that will germinate quite well is nevertheless unsatisfactory, because the quality of the flowers which the plants produce is poor.

The best varieties for a good strain of seed may be marked while they are in bloom, and specially propagated. If increased by division they will keep true, but they will not do so if raised from seed. The best time for division is late spring, after the flowering is over. If the plants are large they may be divided into several portions, but care should always be taken to get a distinct part, with roots of its own. The pieces may be planted in a semi-shady spot, in rich, cool soil. A dry position, fully exposed to the sun during the greater part of the day, does not suit them. They may not make large plants during the summer—the probability is that they will not—but so long as they become well established, and make some growth, it will suffice, because they will grow rapidly in spring, and spread into large clumps in a few weeks, flowering all the while. The ground may be prepared for them as soon as it is cleared of its summer occu-



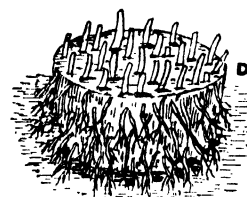
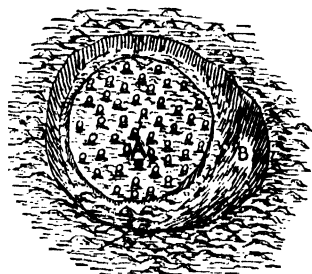
PYRETHRUMS AND LUPINS
By Lillian Stannard

pants, which will probably be in October or November. It should be dug deeply and manured liberally. If the plants are put into beds by themselves they may go fifteen inches apart. But many prefer to have bulbs in the beds as well, in which case the clumps of bulbs may be two feet apart, and the Primroses and Polyanthuses put in the spaces between. They may also be used, with or without bulbs, for the front of herbaceous borders. The Primroses and Polyanthuses are all varieties of *Primula vulgaris*.

Pyrethrums.—To the old school of flower gardeners—the school that revelled in carpet beds and ribbon borders—the genus *Pyrethrum* was familiar in the form of its yellow-leaved representative, the Golden Feather. This plant was worked into all kinds of elaborate designs in conjunction with other foliage plants, such as Alternantheras, Iresines, Dracaenas, and Cha-

The result was a species of plant mosaic, kept flat and close by persistent cropping between finger and thumb throughout the summer. Carpet bedding is now out of date, and the *Pyrethrums* cultivated at the present time are varieties of the Rosy Feverfew, *Pyrethrum roseum*, which differs absolutely from the Golden Feather. The plants are green-leaved, and they have beautiful flowers borne on long stems. It is, of course, for the blooms, and not for the leaves, that we grow them. They rank high among hardy herbaceous plants, and yet are not strictly herbaceous, as they generally retain some of their leaves throughout the winter. Their new growth is made very early, and they may nearly be classed as evergreens.

Every flower gardener must have a collection of *Pyrethrums*,



LIFTING CLUMPS

A, clump. B, open trench, wider at one part to allow the spade or fork to be worked well under. C, side shoot suitable for planting in case of rare kinds or varieties. D, lifted clump.

and he will be wise if he selects both single and double. He will find them almost equally valuable. If the singles lose a little in comparison with the doubles on the plants—and it is not everybody who will admit that they do—they gain when cut for room decoration, as they look lighter and more graceful. Pyrethrums are valuable in more ways than one. In the first place, they are among the earliest of the border plants to bloom, and certainly the earliest of their own standard of merit. Secondly, they bloom very profusely. Thirdly, they throw their flowers well up. Fourthly, they will flower a second time if the fading blooms are removed. Fifthly, the colours are brilliant and varied. These combine to give them a very strong claim on attention. It might be added that the foliage is distinctly handsome. They are in every respect most valuable plants for borders of hardy flowers, and for grouping in beds with other select perennials.

As far as soil is concerned the Pyrethrums are very easily suited. They will thrive in almost any fertile, well-drained medium, but, as might be expected, the finest plants are produced in rich, deep, fertile ground. Dig deeply, manure generously, and your Pyrethrums will give you a handsome reward. They may be planted either in autumn or spring. If increase is required it may be effected by dividing the plants when fresh growth commences. The following are a few of the best varieties:—

SINGLE.

Apollyon, pink.
Ascot, peach.

Golconda, crimson.
James Kelway, scarlet.

Ornement, violet.
Queen of the Whites, white.

DOUBLE.

Carl Vogt, white.
Edna May, pink.

Lord Rosebery, scarlet.
Melton, crimson.

| *Pericles*, yellow.
Queen Alexandra, white.

Roses.—Roses are sometimes introduced into herbaceous borders, especially on stumps and pillars. They have been dealt with in a special section.

Stocks.—To many people Stocks are only familiar in the form of the popular “German Ten-week” varieties. Beautiful and valuable as these are, from their huge double spikes, rich colours, long duration of bloom, and delicious fragrance, they ought not to be the sole representatives of the genus. The Brompton Stock is also a fine plant, well worthy of cultivation. Like the Ten-week, it is easily raised from seed, but it is best treated as a biennial, being sown in a frame in June, grown sturdily, and planted out, if the position is fairly dry and well drained, in October for flowering the following year. The plants are liable to be destroyed in low, damp places, on which frost settles sharply in winter; and in case of doubt they may be wintered in pots in frames. In the latter event they will be planted out in spring, and a little trouble may well be taken to prepare the ground, thorough digging and manuring being resorted to, preferably a few weeks before planting time. The plants will not be retained after flowering, but fresh seeds sown; thus they become what we call biennials. The Brompton Stocks have bold growth, large flower spikes, and bright colours to recommend them; we may therefore turn to them with confidence.

There is no reason, of course, why the Ten-week Stocks should not be introduced into herbaceous borders if desired. There are often positions near the front of borders where clumps might be planted with great advantage. These beautiful flowers are genuine annuals, but for all that they belong to the same genus as the biennial Brompton—*Matthiola*. Whence the name “Stock,” it may be asked, and whence “*Matthiola*”? “Stock” is an abbreviation of “Stock Gillyflower” (gilloflower or gilliflower). “*Matthiola*” is derived from *Matthioli*, the genus having been named after an Italian of that name. Our flower-loving forebears did not distinguish flowers by separate names so carefully as we do now, and they called several plants which we regard as distinct by the collective name of Gillyflowers. Stocks and Carnations were both

Gillyflowers. This presently led to confusion, which they endeavoured to remove by using the term Stock Gillyflower for the former and Clove Gillyflower for the latter. One had clear stems or stocks, and the other, which was grassy in growth, had clove perfume, hence the distinctive terms. The Gillyflowers referred to in the dialogue between Polixenes and Perdita in the "Winter's Tale" are supposed to be Stocks—

Pol. Then make your garden rich in Gillyflowers,
And do not call them bastards.

Per. I'll not put
The dibble in earth to set one slip of them."

Perdita would hardly have spoken so contemptuously if she had lived at the present time and seen the beautiful "Stock Gillyflowers" which we now possess. But is it certain that Shakespeare had Stocks in mind, after all, when he wrote this? It certainly seems so, because in a previous passage he makes Perdita speak of—

"Carnations and streak'd Gillyflowers,
Which some call Nature's bastards."

But if so, he was caught tripping horticulturally, because there could be no call for "dibble" and "slips" in the case of the annual Stock Gillyflower, which would be raised from seed, although they might be fairly applicable to Pinks and Carnations, if propagated by cuttings, as they often were, doubtless.

The Ten-week or annual Stocks which we possess nowadays give a large percentage of doubles, if the splendid strains of the German florists are bought from reliable seedsmen. A strain composed entirely of singles is tolerable, but a strain which is a mixture of singles and doubles in the proportion of two or three of the former to one of the latter is disappointing and troublesome. It is difficult to plant it to advantage, because there is a considerable difference in the size of the plants and the duration of the flowers. The grower must expect a certain number of



DELPHINIUMS
By Anna Lea-Merritt

singles, because all the seed is saved from single flowers, and great as are the skill and care of the florist, he cannot insure that every plant raised from seed of a single flower will become double. No reasonable person will expect that. A good strain will yield from seventy to eighty per cent. of doubles, and that is quite satisfactory, because the flower gardener who objects to singles has only to plant three extra in every ten he puts in, to allow for removals when the plants come into bloom.

There may be two or three distinct strains offered in the catalogues. There are almost certain to be two, namely, the "Dwarf German" and the "Giant Perfection." The latter is larger in all its parts than the former, and is more branching in habit, but it is not superior in richness and variety of colour, or in perfume. For the front of beds the dwarf strain is the more useful. In both cases seed can be bought either in mixture or separate colours. It is wise to sow about the middle of March where glass is available; where it is not, and outdoor sowing becomes imperative, the process should be deferred until the end of April. The seed may be sown thinly in a pot, pan, or box of light, sandy soil, and covered a bare half-inch deep. The receptacle should be covered with a square of glass shaded with paper, and placed on a shelf close to the glass in a greenhouse, or in a frame. The soil must be kept just moist, not sodden. When the plants come through, full exposure to light is imperative, and abundance of air should be allowed. The seedlings may be pricked off four inches apart in boxes when they begin to crowd each other, carefully watered, liberally ventilated, and so kept sturdy—truly "stocky." If planted out eighteen inches apart in rich, well-dug soil, they will give satisfaction.

A few seeds of the night-scented Stock, *Matthiola bicornis*, may be sown in a flower-bed not far from the house windows about the middle of April. It is not a beautiful plant, but the perfume is delicious in the evening.

Sunflowers.—The Sunflower in its many forms, annual and perennial, is an old-time favourite. Perhaps we hold it a little too cheaply. We have been used to it all our lives, and we may not have learned the differences between the varieties, because it has not occurred to us that the plants are worthy of being studied. We sow them or plant them, and there's an end of it.

“Sunflowers planted for their gilded show,
That scale the lattice windows ere they blow,
Then sweet to habitants within the sheds,
Peep through the diamond panes their gilded heads.

So sings the poet. He is guilty of tautology, for he uses the adjective “gilded” twice in four lines, but when he speaks of their being “sweet to habitants within the sheds,” he knows what he is talking about. He was probably a poultry-keeper, and had learned how fond fowls are of the oily seeds.

Moore was not equally correct, although distinctly more poetical, when he used the figure—

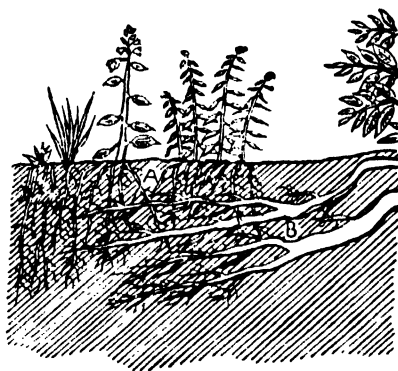
“As the Sunflower turns to her God when he sets
The same look which she turned when he rose.”

It is a pleasing fancy that the Sunflower follows the sun in its passage of the heavens, but it is not based on fact. Anyone who grows a group of Sunflowers may observe that some flowers are facing the sun at dawn, and some at sunset, but they are not the same flowers; and they certainly do not twist round and follow the sun's orbit.

The Sunflower belongs to the genus *Helianthus*, and there are both annual and perennial forms of it. The former are propagated by seed, and the latter by seeds and division. The annuals may be sown under glass in March, or out of doors at the end of April, and the perennials may be divided at the same period. Most of them are tall, and some are also bushy growers, so that they take up a good deal of space. On this account they must not be planted numerously, especially near the front of beds or

borders, but should be arranged in small groups in positions at the back, where they can develop to their heart's content. They may soar to ten or even twelve feet high, and they will certainly make a brave show, which will last for a considerable time in late summer and early autumn. The double perennial forms are particularly lasting. Both the annuals and perennials love a deep, cool, moist soil, but they are not fastidious. They will need staking, or the first gale will spoil them.

The common annual Sunflower, *Helianthus annuus*, has several varieties, both single and double. Of the former, giganteus and Munstead Primrose may be mentioned. Of the latter, globosus fistulosus is excellent. There is a dwarfed, more bushy annual Sunflower named cucumerifolius (cucumber-leaved), and this, together with its variety Stella, is well worth growing. It flowers very abundantly. There is also an annual Sunflower with silvery leaves, called argophyllus, which is greatly liked by many. As respects the perennials, decapatalus may be mentioned first. It grows about six feet high, and has small, single, yellow flowers, which it bears very freely. The best-known species is multiflorus (many-flowered) single, of which there are several varieties, both single and double. It grows about four feet high, is bushy, and blooms very profusely. The variety maximus is much finer than the parent species. It grows taller, and has larger flowers. There is an excellent double variety called Soleil d'or. The species orgyalis (a soft pronunciation of the "g" lends a distinctly bacchanalian sound to this name) is a very useful Sunflower, partly because it has exceptionally handsome leaves, and partly because it flowers



AN ERROR IN

Showing the mistake, or result of planting too near to large trees or shrubs, as the roots of the latter rob the plants of food. A, herbaceous plants; B, tree roots.

later than the majority of the species. Botanists now class the popular plant generally known as *Harpalium rigidum* as a *Helianthus*, under the name of *H. rigidus*. Probably the old name will cling to it for a considerable time, but the plant is likely to be less and less grown, as the variety Miss Mellish is finer.

Sweet Williams.—The Sweet William, *Dianthus barbatus* of botanists, has always been a favourite garden flower, and it was once by way of being a florist's flower on a modest scale, but Roses, Dahlias, Sweet Peas, Carnations, Violas, and others had greater merits, and gradually squeezed it into the background. Nowadays it is rarely cultivated in the florist's "grand style." It is not specialised, and varieties with distinctive names to be propagated by cuttings in order to keep them true, are extremely rare. It is lumped with Wallflowers, Foxgloves, and Canterbury Bells in the class of "useful hardy biennials," and seed is sown out of doors about the end of May for flowering the following year. But these same seedling plants yield a particularly fine variety now and then, if the seed comes from a good source; and it should be known that a superior sort can be perpetuated much more certainly by cuttings than by seeds. The shoots which grow from the base of the plants in summer, and are free of flower stems, are the only kind that there is any good chance of striking, and even these require care and attention, owing to the fact that they are taken in summer, when the weather may be hot and dry. It is well to insert them in a cool, shady place, and to moisten them if they show any signs of flagging.

There are one or two varieties of Sweet William on the market which come true from the seed. Among these is a beautiful salmon pink, a very distinct, bright, and useful variety, dwarf in habit, free-flowering, and well adapted for planting in borders. One gets the best plants of it—as, indeed, of all Sweet Williams raised from seed—when the seedlings are carefully thinned, and the plants are put out nine inches apart in a nursery bed, there



COLUMBINES (*Aquile*)
By Francis G. James

to remain until autumn, and then be transplanted into rich, deeply-dug ground. This ensures very sturdy plants, that are certain to bloom well. They may last several years, indeed become quite perennial, if they are prevented from ripening seed by having the decaying flower heads pinched off; but it is very little trouble to raise fresh plants every year, and all things considered, they give greater satisfaction. One little hint to the reader who gardens in the country, especially near a wood, or a sandhill—'ware rabbits. These pests will destroy the work of several months among Sweet Williams, Carnations, Wallflowers, and other popular things in a night or two if they are permitted free entrance to the garden. They should be wired out, or snared.

Some seedsmen offer seed of a strain of what they call "Auricula-eyed" Sweet Williams. This is the type that the florist specialised in years gone by. It is not every seedsman who has a really high-class strain, but some firms of repute have it and give close attention to keeping it true and good by careful selection for the benefit of certain regular customers. There are also double Sweet Williams.

The origin of the popular name has excited the curiosity of some lovers of the flower, but they have found it difficult to trace it. As a matter of fact, the name Sweet William was applied to more than one plant in past times, notably the Wallflower, which belongs to an entirely different genus. The plant is related to the Carnations and Pinks, and as the specific name "barbatus" means "bearded," the cognomen of "bearded pink" is quite justified. By whatever name it may be called, and whatever the derivation of its several names, the plant must be grown, for, in the words of Cowley—

"Sweet William small has form and aspect bright."

Tulips.—The revival of the Tulip has led to the introduction of a large number of beautiful varieties, many of them tall and

stately in growth, with immense flowers of brilliant and varied colours. They are magnificent spring-flowering border plants, and special attention has been devoted to them in the bulb section.

Violas.—The *Viola* is an old flower, and yet a modern one—an apparent paradox that requires a word of explanation. When we use the word *Viola* in a garden sense nowadays, we employ it in reference to a plant which occupies as well defined a place in gardens as Carnations and Dahlias. It is a modern plant, represented by numerous beautiful varieties, some of which are grown in nearly every garden. The *Viola*, indeed, rides the wave of popularity, and is likely to do so for many years, owing to its outstanding merits. Some people call it the “tufted Pansy,” and the name is not inapt, inasmuch as the growth is tufty, and the plants are at least as much Pansies as *Violas*. But Pansies play a distinct part from *Violas* in gardens, and besides, it is inadvisable to use two words where one will suffice. How has the modern *Viola* arisen? Undoubtedly by hybridisation between old species and modern Pansies. The Pansy itself is, of course, a *Viola*, *V. tricolor*. By uniting some of the small-flowered but tufty-growing species of *Viola* such as *alpina*, with large-flowered, but non-tufty, Pansies, the florists have raised this modern class of garden *Viola* or tufted Pansy. The plants are distinguished by dense, compact growth, relatively large flowers, rich and diversified colours, and great profusion and persistency in flowering. Qualities like these were bound to make them popular garden plants, and such they have become; indeed, their rise in favour during the last ten years of the nineteenth century, and the early years of the twentieth, was one of the wonders of modern flower gardening.

The *Violas* are not suitable for making bold effects in borders, but they are admirably adapted for forming carpets among tall plants. They can be utilised for this purpose in herbaceous borders and in Rose beds. Those who grow standard Roses in particular

may turn to *Violas*. The area of bare ground, and the stems rising therefrom, are great drawbacks to standards. Plant *Violas* beneath them, and bareness is transformed into beauty. They can also be pressed into service for forming lines and edgings to beds and borders. For edging purposes they look best when planted in bands a foot or more across. If well grown, regularly picked over, and occasionally top-dressed or given a soaking of liquid manure, they will be in beauty for six months.

Those flower gardeners who want to get the best out of *Violas* should make a start by buying plants in spring, and planting them in deeply-dug, well-manured soil. The earlier this is done the better, because when planted early they have a good chance of getting well established before the hot weather comes. But they can be planted up to June and even July, if the grower is prepared to take trouble in shading and watering. It is courting failure to plant in thin, dry, hungry soil. The plants enjoy depth, coolness, moisture, and fertility. Given this they will be full of vigour, and will keep growing for many weeks. They may be planted about nine inches apart. Old plants will give earlier flowers than young ones, but will not bloom so finely or so long.

Constant cutting should be practised throughout the summer. The flowers will be found useful in the house, and apart from that, the regular picking will prevent seed-pods forming, and so keep the plants growing. If they seem disposed to go out of bloom, and get bare-stemmed, they may be clipped in, removing the old, worn growths as well as the flowers, and the soil among them mulched with rich soil. This will encourage fresh growth, and they will soon be in bloom again. Heavy soakings of water and liquid manure will also do them good.

Propagation can be readily effected in autumn by means of cuttings. Flowerless, growing shoots springing from the base are best, and if these are inserted just clear of each other in sandy soil in a frame or small box covered with glass they will pass

the winter nearly dormant, and quickly make strong plants in spring.

The following are beautiful varieties of *Violas* :—

* <i>Accushla</i> , white and blue.	<i>Hector Macdonald</i> , white, purple edge.
<i>A. J. Rowberry</i> , yellow.	* <i>J. B. Riding</i> , mauve.
* <i>Archibald Grant</i> , plum blue.	* <i>Mauve Queen</i> , mauve.
* <i>Ardwell Gem</i> , primrose.	<i>Mrs. C. McPhail</i> , heliotrope.
* <i>Blue Cloud</i> , white, blue edge.	<i>Minnie J. Ollar</i> , cream, edged purple.
* <i>Bullion</i> , deep yellow.	* <i>Rolph</i> , blue.
* <i>Countess of Hopetoun</i> , white.	* <i>Snowflake</i> , white.
<i>Crieffie Smith</i> , black and lavender.	* <i>True Blue</i> , dark blue.
<i>Councillor Waters</i> , purplish crimson.	* <i>William Neil</i> , rosy lavender.
<i>Duchess of Argyll</i> , white, purple edge.	* <i>W. P. A. Smith</i> , cream, heliotrope edge.
<i>General Baden Powell</i> , orange.	

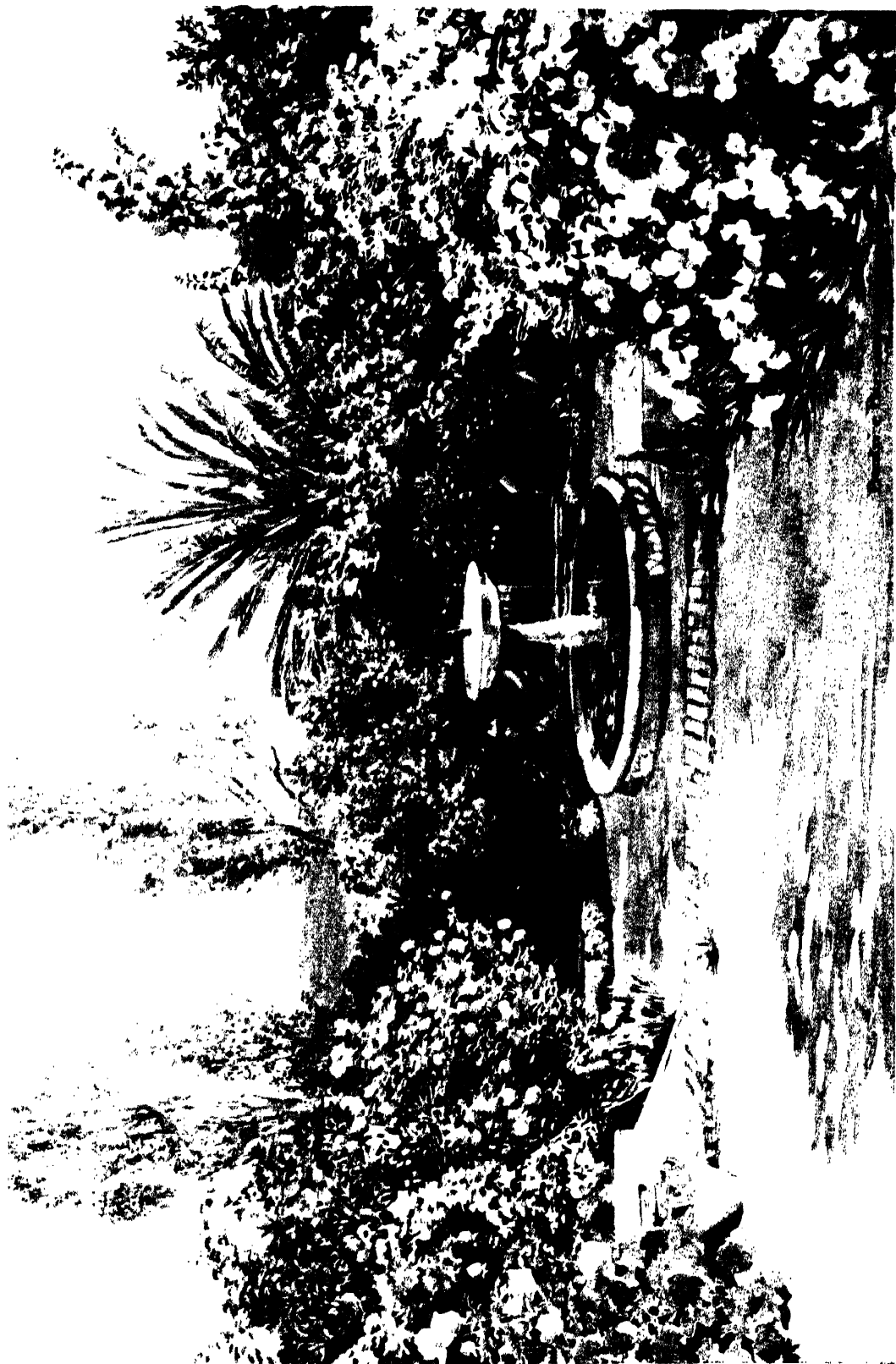
Those marked * are particularly free-flowering and good for the garden.

Wallflowers.—A delicious old-fashioned flower is *Cheiranthus Cheirii*, popularly known as the Wallflower. Who does not know it? Who does not love it? Its spicy fragrance greets us in spring, and reminds us of the cottage gardens into which we loved to peep in childhood's days. It is an old, old flower, but just as great a favourite with us as it was with the gardeners of past days. Its love for stony cliff sides, and for the crumbling walls of old ruins, is well known. There it gets what appears to be a precarious foothold, and flowers most cheerfully—

“And where my favourite abbey rears on high
Its crumbling ruins, on their loftiest crest,
Ye Wallflowers, shed your tints of golden dye,
On which the morning sunbeams love to rest.”

Thus sings Barton. On various cliff sides by the sea, notably under the far-famed Leas at Folkestone, the Wallflowers form colonies as happy and as sweet as those on ruined walls. They have probably been planted there by the town gardeners some time or other. In olden days the Wallflower used to be called the “wall-gillyflower,” but this was abbreviated to Wallflower, just as “stock-gilly flower” was reduced to plain “Stock.”

Of course the Wallflower is not restricted to culture on walls



EVENING PRIMROSE (*Oenothera*)
By Beatrice Parsons

and cliff sides, but is cultivated in gardens, and happy as the plant seems to be in positions where it can get little moisture, as in dry limestone crevices, experience teaches that it not only grows in the deep, rich soil of cultivated beds, but makes finer plants there than on the walls. It may seem a little surprising, in view of the plant's love for a dry site, but our finest plants have developed on deep, cool, fertile clay. They are best grown as biennials—that is, sown at the end of May, thinned, set out a foot apart in a nursery bed when they begin to crowd each other, and planted out in October or November for blooming the following spring. The best selections come quite true from seed. Of singles there are the following:—

Belvoir Castle, yellow.

Faerie Queen, citron.

Ruby Gem, ruby.

Eastern Queen, dark apricot.

Harbinger, brown.

Vulcan, dark red.

The double German Wallflowers are splendid, Stock-like plants, which may be raised from seed; and the newer Annual Wallflower, which blooms the same year from spring-sown seed, must not be forgotten.

VARIOUS HARDY PLANTS

While the majority of flower gardeners will form their borders and beds principally with the popular plants dealt with in the foregoing notes, some, at least, will also use other flowers. The number of distinct kinds of herbaceous plants is enormous, and some of those which are little known to the great flower-loving public, but are familiar enough to people who make a study of hardy flowers, are extremely beautiful. The fact that many amateurs proceed to absurd extremes, and fling themselves into a state of ecstatic rapture over any plant which happens to be hardy and herbaceous, should not deter sensible and level-headed people from making themselves acquainted with really beautiful and worthy plants. Let us pick out a few of the best of the less-known hardy flowers. If we put them into three sections—dwarf (not

exceeding two feet high), medium (two to three feet high), and tall (upwards of three feet high)—the planter will have a useful guide to arrangement; but it may be well to point out that height varies with soil, situation, and culture. Nearly all of those selected may be propagated by division in spring, and many by seeds.

DWARF HERBACEOUS PLANTS

(Some of the quite low-growing plants in this section are reserved for consideration under Rock Plants.)

Achillea.—About the best plant in this genus is the variety of *Ptarmica* called The Pearl, which has double white flowers. It is very useful.

Anchusa italica (*Boragewort*).—Free flowering, and of a rich, dark blue.

Anthericum Liliastrum (*St. Bruno's Lily*).—A graceful plant with white flowers.

Armeria cephalotes.—A bright and free-blooming plant with pink flowers.

Cheiranthus Marshallii.—A species of Wall-flower, with brilliant orange flowers.

Centaurea montana.—One of the Cornflowers, with blue flowers. The common Cornflower, an annual, is *Centaurea Cyanus*.

Corydalis lutea.—A beautiful yellow-flowered plant.

Delphinium nudicaule.—This differs greatly from the florists' Delphiniums, which have already been treated on. It grows about two feet high, and has red flowers.

Dicentra (Dielytra) spectabilis.—The Lyre Flower or Bleeding Heart. A graceful plant with pink flowers, procurable in the form of dry roots from bulb-dealers in the autumn.

Dodecatheon Meadia (*American Cowslip*).—A pretty plant, of which the bulb-dealers will furnish a supply in autumn. Colours various.

Erigerons (Fleabanes).—Good plants. *Aurantiacus*, orange; *Manescavi* (Heron's Bill), pink; and *speciosus*, violet, are all worth including.

Funkias (Plantain Lilies).—Graceful plants. *Grandiflora*, white, is about the best.

Gentians.—The taller species, such as *Andrewsii*, may be grown in the border; the dwarfer ones are best kept for the rockery.

Geraniums (Crane's Bills).—These are, of course, very different from the Zonal "Geraniums," which are tender plants. Of the hardy species *sanguineum*, red, and *Endressi*, pink, are two of the best. They are strong growing and very free-flowering plants, which will be found extremely useful.

Geums (Avens).—Bright and free-flowering. *Coccineum*, scarlet, is the best known.

Gillenia trifoliata.—Pink.

Helenium pumilum.—A very free-flowering plant, with yellow flowers. The variety *striatum* is also good.

Hemerocallis (Day Lilies).—Among the most desirable of border plants, owing to their bright flowers and very graceful habit. *Dumortieri*, orange, is one of the best species, but there are now several beautiful hybrids on the market,

which, if rather too expensive for the majority of people, may appeal to some.

Heuchera sanguinea.—A beautiful plant with rosy red flowers, well worth specialising. There are several varieties of it, all pleasing and graceful.

Incarvillea Delavayi.—Large, funnel-shaped crimson flowers.

Inula glandulosa.—A beautiful plant, with deep yellow flowers, very striking and handsome.

Hypericum (*St. John's Worts*).—Valuable plants on account of the fact that they thrive in shady positions. They produce yellow flowers.

Lobelias.—Everybody knows the little blue annual *Lobelia*, which is used for edgings, and is a tender plant. Those now referred to are the tall, hardy kinds, such as *cardinalis*, red, and *syphilitica*, blue. They are splendid plants. Several distinct varieties of *cardinalis* are offered by the nurseryman.

Lychnis.—The best of this genus, which includes the *Campion*, is perhaps the beautiful double rose kind called *Viscaria flore pleno*.

Meconopsis cambrica.—This is the yellow Welsh Poppy.

Monarda didyma.—This is the perfumed Bergamot. The flowers are red.

Orobis aurantiis.—A useful yellow flower.

Ourisia coccinea (*Bear's Ear*).—A very distinct and pretty little plant, with red flowers.

Physalis (*Winter Cherry*).—Handsome on account of the bright coral or scarlet calyxes or pods, which are the finest in the species *Francheti*.

Potentillas (*Cinquefoils*).—Dwarf plants, with leaves much resembling those of Strawberries, and bright and varied flowers, both single and double.

Polemonium caeruleum.—The blue Lungwort, a very pretty plant.

Primula japonica.—A beautiful plant, with flowers of deep rose or crimson, borne in tiers (whorls). It loves the water-side. *Denticulata*, lilac, is also a pretty *Primula*.

Ranunculus aconitifolius plenus (*Fair Maids of France*).—White.

Sanguinaria canadensis (*Bloodroot*).—A distinct and attractive plant, with white flowers.

Saxifragas.—Most of these are rockery plants, but *granulata*, white, can be grown in the herbaceous border with advantage.

Scabious.—The species *caucasica*, which has large, single, flattish, pale blue flowers, should be grown, as it is extremely beautiful.

Senecio pulcher.—A very beautiful plant, with purplish-rose flowers.

Spiraeas.—The *Spiraeas* (*Meadow Sweets*) are really shrubs, but several of them, and particularly *palmata*, red, are used in herbaceous borders.

Statice.—Several of these are desirable plants, and one of the best of them is *latifolia*, which has blue flowers.

Thalictrum anemonoides (*Meadow Rue*).—Pink flowers.

Tiarella cordifolia (*Foam Flower*).—Beautiful, feathery heads of white flowers. Likes a shady position.

Tradescantia virginica (*Spiderwort*).—Blue—a pretty plant with slender leaves. There is also a white form.

Trillium grandiflorum (*American Wood Lily*).—A beautiful white flower, loving shade. Bulb-dealers supply it in autumn.

Trollius (*Globe Flower*).—Bright and cheerful plants, flowering in late spring. *Europaeus*, the best-known species, has pale yellow flowers, but there are several forms of it. *Asiaticus*, another well-known kind, has also yellow flowers, but of a deeper shade, and there is an orange-coloured form of it.

PLANTS OF MEDIUM HEIGHT

- Achillea Millefolium roseum* (Milfoil).—A free-flowering plant with pink flowers.
- Centranthus ruber* (Valerian).—This is the plant sometimes seen growing wild on railway embankments; the flowers are in various shades of red. There is also a white Valerian.
- Coreopsis*.—There are several good species of this genus, notably lanceolata and grandiflora, both of which are yellow flowered.
- Echinops Ritro*.—A plant with metallic flowers, blue in colour, and much resembling an Eryngium.
- Eryngiums* (Sea distinct plants, with metallic, spiny flowers, principally blue in colour. There are several species.
- Geranium pratense*.—Another of the Crane's Bills, with blue flowers.
- Hemerocallis flava*.—Another of the Day Lilies, with orange flowers.
- Lychnis*.—Coronaria, red, and Vespertina flore pleno, double white, are two good plants.
- Spiraea filipendula*.—Free - blooming, cream.

In the above section the flower gardener will also include Campanulas, Irises, Lilioms, Paeonies, Phloxes, and Pentstemons, which are dealt with separately.

TALL PLANTS

Several very fine plants come into this section. Asters (Michaelmas Daisies) and Helianthus (Sunflowers) have already been dealt with.

- Acanthus mollis* (Bear's Breech).—A good plant with purple and white flowers, but perhaps most remarkable on account of its very distinct and handsome foliage.
- Aconitum* (Monk's-hood).—A plant of grim and evil repute, owing to the extremely poisonous nature of its roots, nevertheless very handsome, with its tall stems of dark-blue flowers.
- Bocconia cordata* (Plume Poppy).—A very distinct and handsome plant, with broad, spreading foliage, and tall spikes of cream-coloured flowers.
- Boltonia asteroides*.—An autumn-blooming plant with pale lilac flowers; very closely resembling a Michaelmas Daisy. It blooms freely.
- Dictamnus albus* (Burning Bush).—A tall white perennial, the stems of which bear an inflammable resin, that ignites if a light is put to it. The variety Fraxinella is purple.
- Epilobium angustifolium* (Willow Herb).—A tall and graceful plant with red flowers, doing well near water.
- Eremurus*.—The Eremuri are stately and beautiful plants, the flower stems of which rise five or six feet high. Robustus, pink, and himalaicus, white, are both very fine.
- Galegas* (Goat's Rues).—Very free-flowering



SUNFLOWERS AND THISTLES
By Lilian Stannard

and long-lasting plants, that succeed in nearly all soils, but best in a deep, moist medium. The species *officinalis* is lilac, but there is a white variety, also one with variegated leaves. All are useful and graceful.

Gynerium argenteum (*Pampas Grass*).—

A beautiful plant for an isolated position on a lawn. It is at its best in early autumn, when the white, silky plumes are fully matured.

Polygonums (*Knotweeds*).—Two useful species are *cuspidatum*, white, and *saccharinense*, yellow.

Romneya Coulteri (*Californian Bush Poppy*).

—A glorious, shrub-like plant, growing to large proportions, and bearing immense, single white flowers. It is not quite hardy, and some dry litter should be spread over the stool in the winter.

Rudbeckias (*Cone Flowers*).—Useful perennials, growing in moist soils, and flowering freely. *Grandiflora*, purple with yellow, and *maxima*, yellow, are good species.

Solidago speciosa (*Golden Rod*).—A graceful and beautiful plant, with pendent plumes of yellow flowers in late summer.

Spiraea Ulmaria (*Meadow Sweet*).—One of the most useful of the *Spiraeas*; white flowers.

Verbascums (*Mulleins*).—Tall plants, mostly with yellow flowers. *Chalcidii* and *ol ympicum* are two of the best-known species.

Veronica longifolia subsessilis.—A valuable blue-flowered perennial.

Yucca angustifolia (*Adam's needle*).—Large heads of cream-coloured flowers, very handsome.

ROCKERY PLANTS

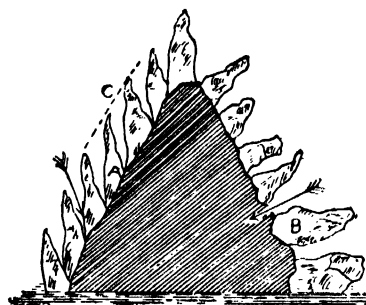
No phase of gardening is more interesting to that large number of persons which loves to take its hobbies seriously than the cultivation of rock plants. Some people enjoy gardening in a light and airy sort of way. They like just to "stick things in," and then leave them to look after themselves. They are not prepared to take much trouble; the necessity for that makes gardening irksome to them, and robs it of its charm. Others are so earnest by nature, so thorough and painstaking in everything that they do, that they would no more think of taking their gardening lightly than they would their devotions, or the training of their children. They are conscientious, perhaps even to a fault. In their play, as in their work, they study detail with infinite and loving care.

Successful rock gardening is not a process of "sticking in." It calls insistently for detail. It is exacting. While rock plants as a class have much in common they also have individual likes and dislikes. One cannot put out a collection of rock plants in the same way as a farmer can turn a flock of sheep into a field, and let each look after itself. The making of the rockery is in itself a considerable undertaking, calling for much care, judgment, and knowledge.

It is with no desire to frighten flower-lovers away from rock gardening that its somewhat exigent nature is pointed out. Many people will be attracted to it by this very fact. The point which we think it desirable to establish at the outset is that the cultivation of rockery plants is a different and more serious matter than the handling of a few bedding plants. And having gone so far it is desirable to go a little further, and make it clear that rockwork

is comparatively expensive. Given half an acre of garden devoted to herbaceous borders or bedding plants, and a similar area devoted to rockeries, the last would be much the most costly. This arises partly from the cost of construction of the rockery, and partly from the greater number of plants required.

Whether a rockery is too expensive a luxury for any particular flower gardener or not, must of course depend upon circumstances. An important factor is the stone supply. Is it near or far? Have you a quarry within easy distance for carts, or would you have to send one hundred and fifty miles for stones, and then have to cart them three or four miles, owing to being a considerable distance from a railway? Much turns on the reply to these questions. Remember that stones, and large, hard stones, are really necessary. Hotch-potch rockeries made up of clinkers are only satisfying to those who have seen no other. Directly the owner of a clinker rockery sees one made well with suitable stones his pleasure in his property departs, because he sees that it is unnatural. In rock gardening we set ourselves deliberately to copy nature. We not only elect to grow good plants, but also to grow them in a particular environment, such as they would have in a state of nature. No one who can get hard stone locally need hesitate about starting rock gardening, for with a charge for stone of no more than five or six shillings a ton, the cost is not going to be excessive. If, however, the necessary stone has to be got from a distance, at a possible cost of a pound to twenty-five shillings a ton, it is well to carefully calculate matters before making a start. One obvious way of reducing the cost of a rockery that a person who is bent upon having one, and yet has only a little money



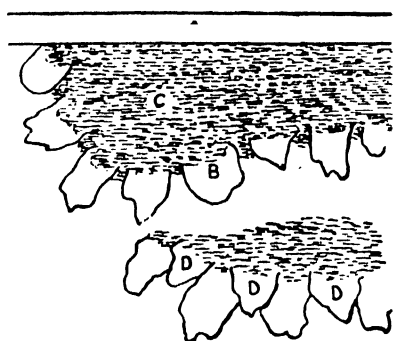
CONSTRUCTION OF ROCKERIES

Right and wrong way to fix the stones.

C shows stones too formal as regards placing.

to spare, can adopt, is to have a small one. It is not large rockeries alone which yield pleasure.

Having made a concession to conscience by pointing out certain facts which must be taken into consideration by those who contemplate establishing a rockery, the writers gladly turn to the more agreeable task of indicating some of the special pleasures and advantages of rockery flowers. In the first place, let us pay a tribute to their intrinsic beauty. Among Alpine plants we find some of the most exquisite of all floral gems. Many are evergreens,



OF ROCKERIES

in of rockery against a wall. A, wall; B, stones; C, soil. D shows second layer of stones coming irregularly between the first laid down.

or, to coin a word, "ever-silvers," since their leaves are grey or white. There is great diversity of habit and foliage among them. The flowers are of the most delicate and refined beauty. Their colours are fresh, clear, and sparkling. Then there is the prolonged period of beauty. Some of the plants come into bloom in the winter.

Many—in fact, the majority—flower in spring. There are plants which flower in summer, and others which

bloom in autumn. Thus our gardening interest is not allowed to lie dormant during any part of the year. It is being constantly stimulated. We are led on from day to day, from week to week, from month to month, by the never-ending succession of charming flowers. The well-managed rockery is rarely bare of flowers, and it is never absolutely without colour, either of leaf or bloom.

Over and above these considerations there is what is spoken of, somewhat indefinitely, perhaps, as "interest." Rock plants are deeply, intensely "interesting." They attract our thoughts, engage our affections, stimulate our minds. We cannot treat them cavalierly. If we study them at all we become absorbed in them. All

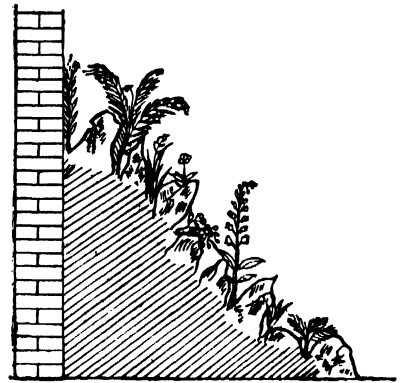


PÆONIES AND ZINNIAS
By H. Ackerman

this, however, makes for our good, because the best side of our nature is being brought into prominence. There is one other consideration worth mentioning, which is that when once our rockery is formed the work associated with it is not laborious, but light. This will not appeal to young, *strong, healthy, energetic* people; it will, however, do so to *elderly and delicate folk*, who love flowers, but are unequal to the fatigue of general gardening. And in this connection it may be pointed out that rock gardening presents an almost ideal form of indulgence in the pleasures of cultivating flowers for ladies, to whom the delicate beauty and fragility of the Alpine gems form a special appeal.

Now for a few practical points in connection with making and furnishing rockeries, beginning with the stones. In countries where chalk hills exist it is generally possible to buy a form of limestone called "rag." It varies in hardness in different districts. Where quite soft it is not suitable for the purpose, as it crumbles quickly under

the influence of the weather. A limestone, however, that is hard enough to require considerable force to break it up will do very well. It may not be ideal stone, but it is quite suitable, and persons of narrow means need not hesitate to use it. If procurable locally it is very cheap. Sandstone is excellent for the purpose in view. It is harder than "rag," but, as a rule, the cost is greater. Derbyshire spar is splendid stone, and those who lay themselves out for doing rock gardening thoroughly well, and are not stinted for money, frequently employ it, buying it through one of the nurserymen from whom they procure their plants. The stone is cheap enough at the quarries, but the freightage frequently makes the cost considerable. The advantage of buying the stone



CONSTRUCTION OF ROCKERIES
Section of rockery against a wall.

through a florist is that he generally knows how to go about getting it in pieces of the right size and shape. This is a very important consideration. One might buy a ton of stone in two or three lumps, but that would be useless, except for very large rockeries indeed. Moderate-sized pieces, weighing from five to ten pounds, and nearly flat, are the most suitable. Large pieces that are nearly as thick as they are long are not desirable.



CONSTRUCTION OF ROCKERIES

Showing how to place stones for large and small plants. Top figure—A allows ample space for soil for large plants between stones B, B. Left figure—succulents B, growing in small quantity of soil on flat

The superior utility of flat stone over thicker material quickly becomes apparent when the rockery-builder begins his operations; in fact, it will be apparent to him if he first visits a good rock garden, in search of practical hints to guide his work. It is unfortunate that such examples are not to be found in more of our public parks and gardens, where they might well take the place of part of the overdone "bedding-out." There are good reasons, of course, why a certain amount of bedding must be done, and we do not suggest that rockeries should wholly take the place of flowerbeds, because we are well aware that the funds available for conducting public gar-

dens are limited; moreover, we realise that something very simple and bright is needed to please the public. But there should be examples of rock gardening for the benefit of people of more culture, who, after all, help to pay for the maintenance of public gardens. As things are, it is practically only in a few of the largest botanical gardens, such as Kew and Edinburgh, that instructive specimens of rock gardening can be seen.

Alike for effect, reasonable economy in the use of stone, and for the benefit of the plants, the rockery-builder should use his material sparingly. It will help the Alpine lover to practise

moderation in this respect if he will make a point of paying a preliminary visit to an existing rock garden, made by an expert, if he is fortunate enough to know of one, either public or private, within reasonable distance, to which he can get access. He will probably find that the number of stones used is quite small, that on the whole they are fairly large and flat, that they are fixed in position very firmly, and that they are disposed in such a way as to form roomy pockets or beds. He will probably see that where the stones are laid flat the inner portion of the stone is a little lower than the outer part; in other words, that they have a downward slope towards the soil. The object of this is to carry rain inwards to the plants, instead of outwards away from them. Where stones are placed on end so as to form pockets they will probably be tilted inward at the top, so that the pocket is widest at the bottom. This again favours the reception and retention by the soil of moisture, which, on elevated mounds, always tends to drain away from the plants and leave the soil too dry.

A person who has sloping ground in his garden, or anything in the way of a ravine, small or large, can take advantage of it for his rockery. If he has to work on a perfectly flat site he will have to form a mound, small or large, regular or irregular in shape, according to his means and tastes. A rocky ridge may be constructed that winds in gentle undulations, advancing here, receding there, so as to form little promontories and bays; or there may be parallel ridges, with a central path winding through them. Experienced rockery-builders are very skilful in forming such gardens, and turn a bare flat into an Alpine region in miniature with great cunning. Beginners will perhaps act wisely

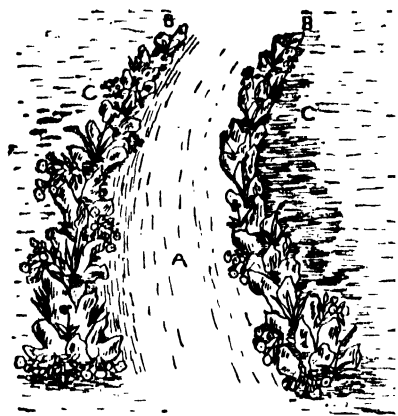


ROCKERY PLANTED

A, miniature rockery; B, succulent and trailing plants growing in hollow of large rock C; D, soil in which rock is embedded.

by contenting themselves for the first year or two with a plain rock bed or mound, and proceeding to more elaborate things after they have gained experience. In any case, however, they will be wise to choose a sunny position, because rock plants love the sun. Such few as do best with shade and a great deal of moisture can be placed near the foot, or on the north side of large, vertical stones.

Whatever be the size of the rockery it will be worth while to pay particular attention to the provision of fertile soil. Good, fibrous



ROCKERY EDGINGS TO PATHS

A, path ; B, B, rockeries ; C, C, borders.

loam is the best, for it will grow the great majority of Alpine plants successfully. Fibrous loam is the under part of turf which has been stacked until the grass has decayed. It is not always easy to get turf at a reasonable cost—say, threepence per square yard—but the rockery-builder should always look about him, and try to procure it. He ought, indeed, to begin his foraging some months before he wants to commence his rockery, because then he can

stack the turf in a heap, grass side downwards, preferably with decayed manure, or leaves, between the layers, near the site of his rockery, and so be sure of an adequate supply of suitable material when the time comes to begin. If he does not do this he must do one of two things when he commences his rockery—either use the ordinary soil of the garden, or buy the necessary supply of special material. It is not often that the former can be spared in quantity, or that it would be good enough if it could. And as regards buying what is required, it is a somewhat expensive undertaking, and needs circumspection. The buyer should see a sample before he parts with his money, and satisfy himself that the soil is friable, and contains plenty of fibre. The soil



VERBENA AND IVY-LEAVED PELARGONIUMS
By Beatrice Parsons

question, equally with the stone question, must be taken into consideration in connection with the formation of a rockery, and provides a further reason for careful preliminary consideration.

We have said that rock plants are extremely beautiful. They are, of course, low-growing for the most part. It is permissible to plant a few tall things in a rock garden, but the great majority must be dwarf. For this reason nothing need be said about height in the following jottings about rock plants, although it is so important in connection with border flowers. Care must be taken to provide for plenty of spreading carpeters that will cover the face of stones and clothe them with bloom, such as perennial Candytufts (*Iberis*), Aubrietias, Yellow Alyssum, and Arabis. It is also desirable to provide for as long a period of bloom as possible, and it will help the planter if we class the plants we propose to recommend in four distinct flowering seasons, beginning with spring.

SPRING-BLOOMING PLANTS

The largest proportion of the rock plants flower in spring, and consequently we shall have no difficulty in making a selection. We will give the colours of the flowers in each case, and put the figure (1) against a few plants which, being both good and cheap, will particularly suit growers of limited means.

Adonis vernalis.—A charming plant with yellow flowers.

(1) *Alyssum saxatile compactum*.—A spreading grower, with yellow flowers, that will speedily cover a wide area. It comes readily from seed sown in June, and is a very inexpensive and beautiful plant.

(1) *Anemones*.—Several of this beautiful genus are desirable, notably *nemorosa* Robinsoniana, a charming blue; and *Pulsatilla*, the Pasque-flower, violet;

Blanda, blue; *apennina*, blue; *fulgens*, scarlet; and other dwarf *Anemones* are also well worth including.

Antennaria tomentosa.—The beauty of this plant lies in its silvery foliage, which spreads into a broad carpet of white.

(1) *Arabis* (*Rock Cress*).—One of the indispensable. Experienced rock gardeners may feel no interest in it, as it is so abundant as to be almost as common as Zonal "Geraniums," but beginners, and those who have to garden econo-

mically, must include it. The single is easily raised from seed sown in June, and the double may be propagated by cuttings. The former spreads the faster; the latter is the prettier as a flower.

- (1) *Arnebia echinoides* (*Prophet Flower*).—A distinct and charming plant; the prevailing colour is yellow, but the flowers have dark dots when young.
- (1) *Aubrieties*.—As valuable as Arabises, coming from seed as readily and as cheaply, flowering as profusely, and having brighter colours. Every rock garden must contain some of these beautiful carpeters, notably Campbells, violet, and Leichtlinii, rose. If the seed catalogue that is consulted does not name these, but includes *gracca* or *purpurea*, buy either of these for raising plants in quantity, and procure a few plants of the others at the first opportunity.
- (1) *Cerastiums*.—Like the *Antennaria*, these are used for their silvery foliage. There are two species, *Biebersteinii* and *tomentosum*, both of which are procurable quite cheaply from several seedsmen. They are of low growth and spread freely, even in soil that is not of the best.
- (1) *Crocuses*.—Every flower gardener is familiar with the early Dutch Crocuses, particularly the yellow, which he buys from bulb-dealers in autumn. A few of these may be planted on the rockery if desired, but there is more interest in the species, such as the orange *aureus*, the white *biflorus*, the purple *imperati*, and the lilac *Sieberi*. It is not every bulb-dealer who offers these, but they are not difficult to get.
- (1) *Cyclamens*.—The hardy *Cyclamens*, such as *coum*, rose; *hederaefolium*, purple; and *europaeum*, red; are dainty little flowers, which come in autumn,

winter, and spring. They make a charming picture at Kew in association with Snowdrops. Corms are procurable from bulb-merchants at no great cost.

- (1) *Dianthus* (*Pinks*).—One of the most valuable of all the many genera of rock plants, these lovely sisters of the Carnation, the Pink and the Sweet William are distinguished by brilliant, sparkling colours, and great abundance of bloom. The Alpine Pink (*alpinus*), rose, and the Cheddar Pink (*caesius*), rose, are two of the most beautiful species, and they are not at all expensive.

Dodecatheon (*American Cowslip*).—An interesting and uncommon looking plant, with lilac flowers. The bulb-dealer will supply it in autumn at a very moderate rate.

Erinus alpinus.—A useful plant with violet flowers.

Erythronium (*Dog's-tooth Violet*).—A very pretty and distinct plant, almost equally admired for its flowers and its leaves. The latter are quaintly marbled. There are several different sorts, and *dens-canis*, rose; *giganteum*, white; and *grandiflorum*, yellow; may all be grown. The first can be bought from almost any bulb-dealer in autumn, and is a cheap plant; the others are in fewer hands, and may be a little more expensive.

Gentians.—These give us that scarce colour—pure, deep blue. *Acaulis* is the finest. It has large flowers full of rich colour. *Verna* is also very pretty.

- (1) *Hepaticas*.—These are really *Anemones*, and their full, correct name is *Anemone Hepatica*, but they are grown in nearly all gardens, and included in most bulb lists, simply as *Hepaticas*. They are delightful plants, blooming very early in the year, and in great profusion.

ROCKERY PLANTS

Some are single, others double. There are blue, red, and white varieties. They are easy enough to grow, but they are not suitable for sunny rockeries, as they love coolness and shade.

- (1) *Iberis* (*Candytufts*). — Indispensable plants, in spite of the fact that they possess no range of colours, the flowers being white. They are dwarf, spread rapidly, and bloom in great profusion. The best species are *corifolia*, *gibraltarica*, and *sempervirens*, one or more of which can be obtained from seedsmen, and sown early in June.

- (1) *Iris*es.—The large and magnificent *Iris* genus has been dealt with somewhat fully in connection with herbaceous plants, but attention must be called to the fact that several species are admirable plants for the rockery, notably *iberica*, lilac and white; *pumila*, lilac and white; *reticulata*, violet and yellow; and *sisyrinchium*, lilac and yellow. These can be obtained from bulb-merchants in autumn.

Leontopodium alpinum.—This is the Edelweiss, over which youthful misses once grew sentimental, in the days before they had taken to golf and hockey. It has silvery foliage and flowers. It is easy to grow, spreads fairly freely, and as it is decidedly distinct in appearance it may be included.

Linum (*Flax*).—This genus contains several beautiful plants, of which *alpinum*, blue, is one of the most useful for the rockery.

- (1) *Myosotis* (*Forget-me-not*).—Delightful old favourites, which have been referred to under Herbaceous Flowers.
- (1) *Narcissi*.—Some of the small *Narcissi* are exquisite little rockery flowers, notably the Cyclamen-flowered (*cyclamineus*), the Angel's Tears (*triandrus*) and its white variety, and the charm-

ing trumpet Daffodil called *Johnstoni* Queen of Spain. All of these can be purchased quite cheaply from bulb-dealers in autumn, and will be very cheerful in spring.

Omphalodes verna. — This is a pretty, Forget-me-not-like plant, with bright blue flowers, propagated by division.

Orobus vernus.—Another useful little flower, propagated by division.

Oxalis floribunda.—A species of *Oxalis* is often sold as Shamrock, but the present is a large form, and would hardly pass muster, apart from the colour of its flowers, which is rose. It is a free-blooming plant, propagated by seed or division.

Phloxes.—One of the most valuable genera, because the plants grow freely, bear abundance of brilliant flowers, and are easily propagated by seed or division. What is called the "subulata" section is the most useful. The type plant is white, but its varieties *frondosa* and *Vivid* are rose, and *Newry Seedling* is lilac. They are all worth growing. *Frondosa* is one of the cheapest and most popular. Another charming *Phlox* is *divaricata*, which has lilac flowers, but it is taller than the *subulata* group. *Ovata*, red, and *reptans*, violet, are also valuable.

- (1) *Primulas* (*Primroses*).—The coloured Primroses and Polyanthus, to which we referred under Herbaceous Flowers, may be used on rockeries, and so may several distinct species. *Rosca*, rose-coloured, is a brilliant gem, but it will not thrive in a hot, dry place; it must have a moist, cool spot. *Marginata*, violet; and *scotica*, purple, with yellow eye; are two charming species. Seeds of several of the *Primulas* are procurable, and may be sown in fine, moist soil, preferably

in a box in a frame or greenhouse, but failing that out of doors in early summer. Or they may be propagated by division.

- (1) *Saxifragas*.—The “Rockfoils” are a large and very important genus of rockery plants—indeed, many would consider them the most important of all. They vary considerably in height and habit, some being quite moss-like, and others having tall flower stems. *Oppositifolia major*, purple, may be taken as an example of the former; and *cordifolia pyramidalis*, red, of the latter. There are many spring-

flowering *Saxifragas* besides these, and three of the best of them are *aizoon*, cream; *granulata*, white; and *Wallacei*, white. The latter is a charming little rock gem, bearing its pretty flowers in great profusion. The *Saxifragas* are propagated by division in autumn.

Triteleia uniflora.—A quaint lilac flower, procurable from bulb-merchants in autumn.

Veronica chamaedrys.—This member of a greatly varying genus, which includes many large shrubs, is suitable for the rockery. It has blue flowers.

SUMMER-FLOWERING PLANTS

Several of the genera that we have already considered give us summer-flowering species, and in addition there are many others.

- (1) *Androsaces*.—These are extremely popular with lovers of rock plants, on account of their brilliant colours and charming flowers. They are particularly dainty and pleasing, both in growth and bloom, and must be regarded as among the choicest of our rockery gems. Perhaps *carnea*, rose-coloured, is the best known, but *lanuginosa* and *villosa*, which are of much the same colour, run it closely. The *Androsaces* are worthy of a little special attention, and should be given selected positions and good soil. They can be increased by division in autumn or winter, and also by seeds sown in spring.

Arenaria (Sandwort).—This white-flowered plant is not one of the highest class, but it is useful, because it will thrive in light, dry soil, which does not suit many of the choicer Alpines. Propagated by division.

- (1) *Armeria cephalotes*.—Most people know this beautiful, grassy-leaved, bright-flowered edging plant. There are few prettier, whatever their cost, and it is as well worthy of being introduced to the rockery as if it had never graced a cottager's flower border. Propagated by division.

Aster (Michaelmas Daisy).—There is one species of this splendid genus which is suitable for the rockery, and that is the purple-flowered *alpinus*; the majority are too large. It is a very pretty Daisy, and may be increased by division in spring.

- (1) *Campanulas (Harebells)*.—This is another of the great rockery genera, and the flower gardener will find it almost as valuable as the Pinks, Phloxes, *Androsaces*, and *Saxifragas*, in spite of (or perhaps because of) the fact that the species are mostly blue in colour. One or two, such as *carpathica* and



POPPIES AND ARUM LILIES
BY R. C.

its white variety, are sold by almost every seedsman, and can be raised in quantity at a very low cost. Others, such as *garganica*, *pulla*, and *Raineri*, all of which are of some shade of blue, can be propagated by seeds or division in spring. They are free-flowering plants of charming habit, and look well among stones.

Convolvulus.—The species *mauritanicus*, blue with white centre, is a pretty plant, and can be raised from seed in spring or early summer.

Coronilla varia.—This charming rosy trailer is worth including in a fairly large rockery, although not of the first importance.

Cyclamen.—The species *europaeum*, mentioned in the spring section, may bloom in summer.

Cypripediums (*Ladies' Slippers*).—These lovely Orchids are well adapted for cool, moist, shady positions at the base of rockeries, but they will not thrive in hot, dry spots. There are two well-known species, namely, *calceolus*, red and yellow; and *spectabile*, rose and white. The latter is a truly beautiful plant. Both thrive in moist peat. Propagated by division.

(1) *Dianthus*.—The Alpine Pinks are not limited to spring-flowering species, fortunately. Several of the most beautiful of them are summer bloomers, and among these may be mentioned *deltoides* (the Maiden Pink), *neglectus*, and *superbus*, all with rose-coloured flowers. They are very brilliant. Seed of most of the *Dianthus*es can be obtained from seedsmen who specialise in hardy flowers, and may be sown in spring or early summer.

Geraniums.—One or two of the hardy *Geraniums*, or Crane's-bills, can be

grown on the rockery if capacious pockets have to be filled, but they should be kept under surveillance or they will overrun smaller, weaker, and perhaps more valued neighbours. *Lancastriense*, rose, is one of the best; it blooms with great profusion, and is bright and vigorous. Propagation may be effected by division.

(1) *Helianthemums* (*Sun Roses*).—These are real friends to the rock gardener who cannot afford choice and expensive plants, for they are very cheap, spread freely, and are brilliant in colour. They form very bright and glowing patches when in full bloom. Propagation is by seed or division in spring.

Linaria alpina (*Alpine Toadflax*).—A pretty plant, with violet and yellow flowers. Propagated by division.

(1) *Lithospermum prostratum*.—One of the most valuable plants, on account of its profuse blooming and deep blue flowers. Propagated by division.

(1) *Poppies*.—The Iceland Poppies (*Papaver nudicaule* and its varieties), referred to under Herbaceous Plants, may be pressed into service for the rockery. They are bright and free-flowering.

(1) *Primulas*.—Several of the hardy *Primulas*, notably *farinosa*, with lilac flowers, and *viscosa*, purple with white centre, bloom in summer, and are charming for the rockery. Propagated by seeds or division in spring.

(1) *Saxifragas*.—Several of the best species, among which *hypnoides* and *longifolia*, both with white flowers, are prominent, are summer bloomers. Propagated by division.

(1) *Sedums* (*Stonecrops*).—These low-growing, dense, free-blooming plants are great favourites with rock gardeners, and justly so, for they are both

attractive and inexpensive. Acre, yellow, glaucum, pink, and lydium, pink, are all well worth including. Propagation is by seed or division.

- (1) *Sempervivums* (*Houseleeks*).—Useful low evergreens, equally attractive for their leaves and flowers. They are very distinct and interesting plants. There is a large number of species, and a collection may be formed by those who develop an interest in them after starting with one or two of the best, such as *arachnoideum* and

tectorum, both with red flowers. Propagation is by division.

- (1) *Silene* (*Catchfly*).—Charming little plants, which grow almost anywhere, flower freely, and have very bright colours. *Maritima*, white, and *Schafta*, rose, are special favourites. Propagation is by seed or division in spring.

Thyme.—The woolly Thyme (*Thymus lanuginosus*) is worth mentioning.

Veronicas.—The two blue species, *teucrium* and *rupestris*, should be selected. They bloom very freely.

AUTUMN AND WINTER FLOWERS

Few Alpines are autumn or winter bloomers, and to get flowers at those seasons we shall have to turn to bulbous and allied plants.

- (1) *Colchicum* (*Meadow Saffron*).—That cheerful, Crocus-like plant, *Colchicum autumnale*, should be grown in quantity, for it costs little, and makes a very bright break of bloom in the autumn. The purple flowers are borne before the leaves. Bulb-merchants supply it.

- (1) *Crocuses*.—Several of the most beautiful species of this popular flower bloom in the autumn, and the following, which the larger bulb-merchants will supply, might be procured: *iridiflorus*, blue; *longiflorus*, lilac; *speciosus*, purple; and *zonatus*, lilac-rose. They ought to be planted in July or August.

- (1) *Cyclamens*.—*Coum* and *europaeum*, which have been mentioned in a previous section, will probably give flowers in autumn and winter.

- (1) *Irises*.—This large and valuable genus, which has been specially dealt with under *Herbaceous Plants*, includes winter-flowering species, and fortunately they are among the most beautiful, notably *Bakeriana*, violet and white; *histrio*, lilac; *persica* *Heldreichi*, lavender and yellow; *reticulata*, violet and yellow; and *Rosenbachiana*, purple and yellow. Large bulb-dealers supply them.

- (1) *Snowdrops*.—These graceful little flowers love cool places, but comfortable homes can be found for them on the rockery. *Galanthus Elwesii* is one of the best. All the finest Snowdrops can be bought from bulb-dealers, most of them very cheaply.

Sternbergia lutea.—A charming dwarf plant, with lemon-coloured flowers, which bulb-dealers supply.

GREENHOUSE, CONSERVATORY, AND HOTHOUSE FLOWERS

LOVERS of flowers who have learned how much their favourites add to the charm of a home, when cut and arranged by skilful fingers in bowls and dainty vases, feel a great blank when winter comes and cuts off the supply of bright and fragrant blossoms. The rooms seem empty and bare, the furniture does not show up so well as it used to do, and the dinner-table looks dull in spite of snowy napery. What can be done? Buy? Yes, if near suitable shops or markets. Flowers are cheap enough now, in all conscience, and the market men take care to maintain a beautiful and varied supply. But those who live in the country find cut flowers very difficult to procure, although coals and bacon may be abundant enough. Besides, the bought flower is never quite the same as the home-grown one. An independent observer might be cruel enough to say that it differed inasmuch as it was better, but that suggestion we put out of court at once. It is not better—it is not half so good—to us, and that is the consideration which really counts.

It is out of this craving for home-grown winter flowers that a desire for glass-houses grows up. In the midst of our gloom and sorrow we suddenly see a ray of light. Winter and spring flowers? Of course. We can have them in abundance, and of our own growing. It is merely a question of spending a few pounds with a horticultural builder, and a few shillings with a purveyor of flower-pots. We ponder this idea, and it grows on us. The more we think of it the better we like it. We see a fair vision of floral charm when we make up a cheerful fire, draw the curtains,

and sit down to the evening meal. Pretty, graceful blossoms nod cheerfully at us across the table. Delicate scents please and soothe our senses. And no longer are our drawing-room vases empty, or decorated with nothing better than a few grasses and berries. They are full of exquisite, perfumed flowers.

Presently another consideration comes. Are there not many plants which we love that we have had to do without, because they are not hardy—Cinerarias, for example, and Cyclamens, and scented Freesias, and Orchids, and Gloxinias, and florists' Fuchsias, and Musk, and Gardenia, and Stephanotis, and Eucharis? These and many other beautiful plants we have foregone, because they do not thrive out of doors. Given glass, we can grow them all.

Perhaps there is a conservatory attached to the house—one of those awkward, lofty, stageless, draughty, damp places which are so tempting to the inexperienced gardener, but which prove to be so unsatisfactory as practical plant-houses. The reader knows that conservatory. If he has not one attached to his own house, he has seen one in association with a house that he visits. There are many things that it does. It sometimes plays a very useful part as an extra room in summer, and a general store in winter; but it is often a general muddle. There is one thing which it never does, and that is to grow decent plants. It cannot do so because it is not built that way. Suppose, however, that the owner takes a new view of it? Then he does not attempt to raise plants in a house which is totally unsuited for the purpose; but he puts up another house to produce the material in, and when it is in perfection he displays it in tasteful ways in his hitherto unsatisfactory house. As a show-house the conservatory proves to be a great success, and it is particularly pleasing and delightful in late winter and early spring—a period during which, in its old days, it was a hopeless and melancholy jumble.

In almost every household there is a member not quite so vigorous as the rest. Perhaps it is a lame or delicate girl, who is



PERENNIAL PHLOXES, WITH ARCH OF CLEMATIS
By Lilian Stannard

not active enough to chase a hockey ball up and down a field, and give and receive resounding ankle thumps. Perhaps it is an elderly valetudinarian of either sex, who finds digging, mowing, and other phases of outdoor gardening too hard work. This member will find most of the work of a glass-house—sowing seeds, striking cuttings, potting and watering—well within the compass of his or her powers. Pleasure and benefit will be derived from these light and interesting occupations. They will be found to constitute both a healthful occupation and a delightful hobby.

All these points may be honestly adduced in favour of glass-houses, and another may be added, of which those familiar with the vagaries of our climate will readily admit the force—they permit of gardening (using the word in its broad sense) when the weather is unfavourable for outdoor work.

To sum up, there are overwhelming advantages in the possession of what the professional gardener speaks of collectively as “glass,” and as (to quote once more Cowper’s oft-quoted words)—

“Who loves a garden loves a greenhouse too,”

we may consider that our present case is proved, and set about getting estimates without a moment’s delay.

We will not, however, make haste too quickly. We will be prudent, and consider the matter in all its bearings. First of all, we will make sure of how much we can afford to spend. In this connection we will not overlook the fact that the mere price of a house does not cover the whole of the capital expenditure. There is the heating to allow for, and that may be expected to add a third to the cost of the structure—more or less according as the house is to be cool, intermediate, or hot. Is it absolutely necessary, one may ask, that a glass-house should be heated? No, it is not indispensable, but it is a great advantage, especially if winter bloom is wanted. We are well aware of the importance of the heating question, inasmuch as artificial heat involves a continuous expendi-

ture for fuel, and thus the matter cannot be settled on the mere basis of so much capital expenditure, any more than the cost of a motor-car can be calculated exclusively on the amount of purchase money. But the fact remains that without the provision for heating the special advantages of glass are greatly reduced.

A second matter that shall have our consideration is whether we will be satisfied with a house or houses for plants alone, or whether, when we are building, we will establish a fruit-house as well. It is important to settle this point at the outset, because two houses can be heated from the same boiler as well as one, provided the latter is of sufficient power. Time available for managing the houses, and suitability of site, are other points demanding consideration, and although they are secondary ones, they should not be overlooked.

Cost of Glass-houses.—The cost of building and heating glass-houses, and the choice of site, may well receive a little special consideration. When we have disposed of them we can proceed to the selection and cultivation of the best plants with a clear conscience. While the cost of glass depends to some extent upon its area, it does not turn upon that alone. There are degrees of solidity in the framework of horticultural buildings, just as there are in vehicles. There are differences in design, degrees of detail, greater or less ornament, elaboration, "finish." There are different qualities of glass, different systems of ventilation, different methods of glazing. The intending purchaser may find that he can buy a greenhouse ten feet long by eight feet wide for £5, and be astonished to find, when he goes to a firm that deals principally in larger houses, that instead of asking £10 for a house twenty feet by sixteen they ask £20 or more. In the matter of glass-houses in private gardens it is not the rule that the proportionate cost decreases with greater size; it generally increases.

The explanation of the cheapness of small greenhouses is that, as they are in great demand, the timber for them can be cut up

into certain lengths by machinery and the houses put together with so many screws, by men who do nothing else, in a given time. The amount of skilled manual labour put into them is very small. It is on all fours with the making of cheap bicycles and cheap books, for which special machinery is devised. It is certainly the fact that greenhouses can be bought at a cost of about ten shillings per foot run, and further, that these houses are quite capable of sheltering plants ; but the purchaser does not get either a substantial or an elaborately finished article. It is severely plain and practical. It is a glass-house corresponding with the long streets of small, five-roomed terrace houses which spring up in all our large industrial towns, with the exception of those in which the tenement or flat system is in vogue. It is scarcely necessary to say that the home builder cannot build cheaper than he can buy while such rates as rule now are in force. He may be able to build better if he is a skilled mechanic, but that is all. Unless he has considerable mechanical knowledge he will be well advised to leave home building alone, for it will probably cost a great deal more than buying a finished house, and be no better.

The machine-made cheap greenhouse is built in sections, which are sent out under numbers, so that they can be easily and quickly put together by any one who knows how to twist a screw-driver round. The frames are generally sent unglazed, to avoid risk of injury in transit, and the requisite amount of glass, cut to fit, is forwarded separately. It is called a "tenant-right" structure, but it loses that character if it is nailed to a wall, or attached to mortared brickwork. If attached to a wall (when such attachment is necessary) by screws, and mounted on unmortared bricks, it is removable at will, but not otherwise.

There must not be a great deal of brickwork employed, or the ten shillings per foot rate will be speedily exceeded, and there need not be. One layer of loose bricks, resting on a firm, level

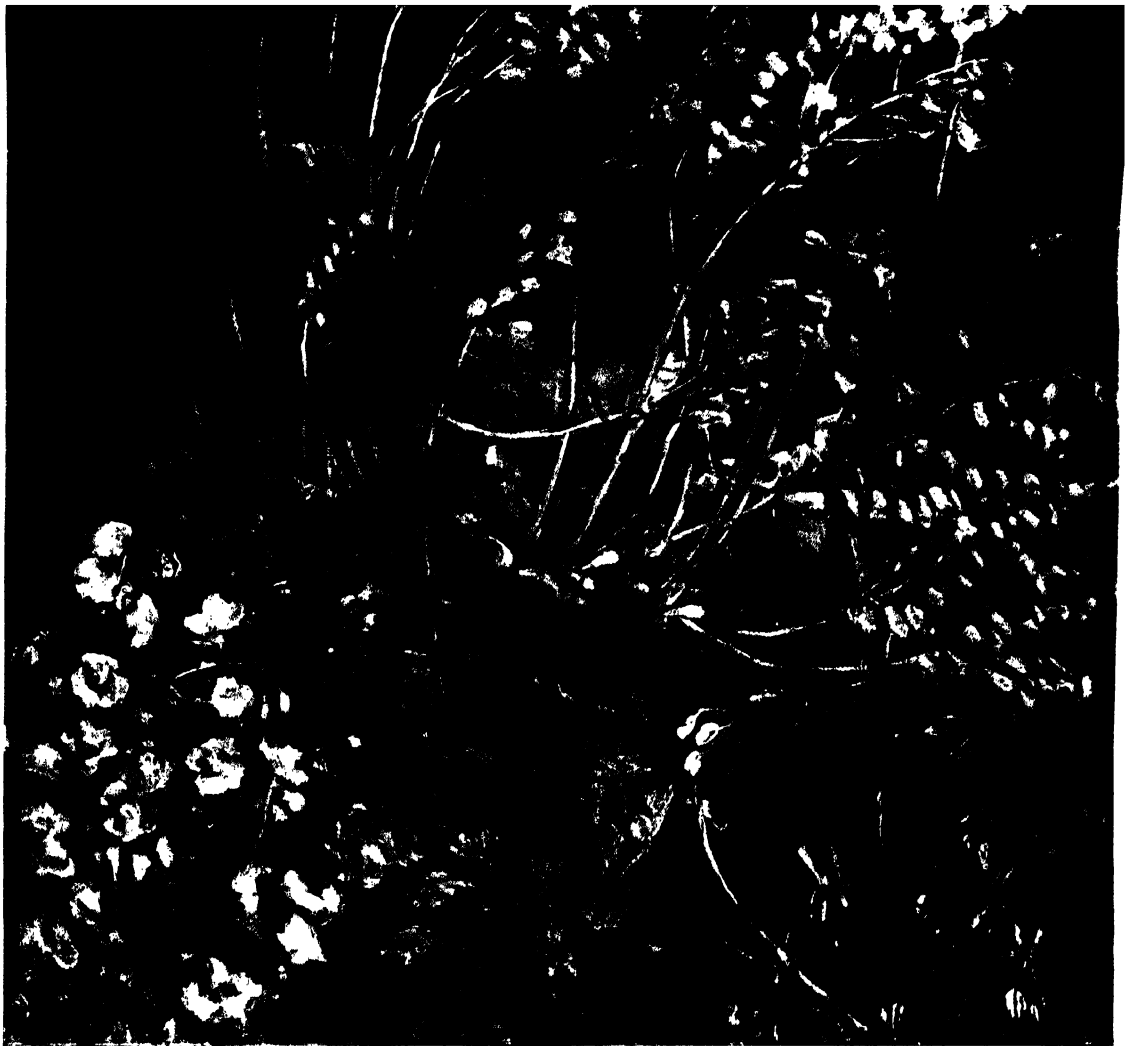
base, will be enough. The wall plates will form a part of the ends and sides, which the dealer sends in sections. Practically the whole of the house will be of wood and glass. It will probably be provided with two top ventilators, if a span-roof,—one on each side.

It is not desirable to buy a house smaller than ten feet by eight. A smaller structure becomes too much of a box. A width of eight feet in a span-roof house permits of two side stages each three feet wide. This is making the most of the space available, and gives quite a respectable area. But a somewhat larger house is desirable, because it permits of a division into two compartments, one of which (the side near the boiler) can have more piping than the other, and so serve as a warm house, while its twin is kept as a cool one.

In view of the fact that things are being cut very fine to get within the ten shillings per foot limit, it may be asked what a really substantial, well-built house, with some pretensions to style about it, would cost per foot run, including the heating. The reply is, anything from £2 to £4; but the former rate would insure a very good house. A lean-to—that is, a house supported by a wall—might be expected to cost a little less than a span-roof, but not, of course, if a wall has to be built to support it.

In view of the great difference in the cost of plant-houses, it behoves the purchaser to get estimates from two or three different firms, and, having compared the amounts, to endeavour to compare the classes of work done by the firms also.

Fitting Houses.—It may be taken as an axiom that a very lofty house is not a good one in which to grow plants. Such a house would be right enough if a high stage, built in tiers to correspond with the pitch of the roof, were constructed to fit it. But high, tier stages in lofty houses are not convenient for working, and are falling out of use. Flat stages are much more manageable. They have the disadvantage, in a house with a very sharp pitch, that the plants

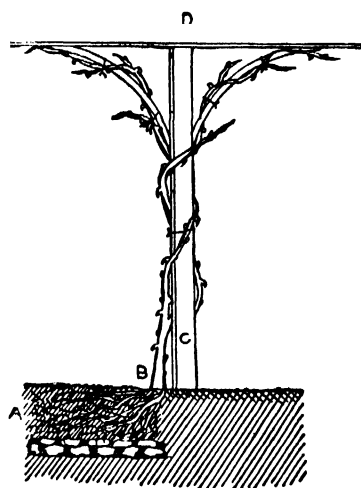


HEUCHERA SANGUINEA
By Anna Lea-Merritt

on the front of the stage are a long way from the glass; but it is not in the least necessary to build a sharp-pitched house, and it is rarely done nowadays. A roof with a gentle slope fits in well with a flat stage. The varying heights of the different plants grown will insure informality; if not, a few can be raised here and there on small blocks, or on empty, inverted flower-pots.

A glass-house should always be fitted with shelves. There should be two, one on each side of the central ridge board, and they should be as broad as the pitch of the roof will permit. The great value of these adjuncts will be manifest when plants are being raised. Seedlings and rooted cuttings—in fact, all plants in their early stages—are better on a shelf close to the glass than on a stage several feet away from it, because they escape becoming “drawn”—a gardener’s phrase, descriptive of the elongation, accompanied by attenuation, which ensues when a plant a long way from the external light endeavours to stretch up to it. This “drawing” of plants is responsible for numerous failures. It is invariably accompanied by thin, weak stems and small, almost substanceless leaves, the natural succession of which is poor flowering.

The question may arise as to whether a portion of the sides, as well as the roof, should be of glass; or whether woodwork should come quite up to the eaves. The former is preferable in the case of fairly large houses, but in those of the smallest size—say, those not exceeding four feet to the eaves—side glass need not be considered. Where side sashes are used it is wise to have one of them hinged to serve as an extra ventilator: it will be very useful in hot summer weather.



TRAINING PLANTS ON PILLARS

A, border; B, climbing plants; C, pillar of greenhouse; D, cross-beam supporting rafters of greenhouse.

Temperatures.—Those to whom a glass-house is a glass-house, and nothing else, are sometimes bewildered when they hear different names applied to glass structures. To many every kind of glass-house is a greenhouse; but to horticulturists a glass-house is only a greenhouse when a certain degree of temperature is maintained in it. With further degrees of heat it becomes an “intermediate” house, or a “stove.” The latter term is particularly confusing. Most people think of a heating apparatus when the word “stove” is used, but not so the gardener; his “stove” is a hothouse.

What degree of heat constitutes a “greenhouse,” what an “intermediate” house, and what a “stove”? A glass-house (other than a conservatory) would be called a greenhouse if unheated, or if not heated beyond an average of 45 degrees in winter; it would be considered an intermediate house if the temperature averaged 55 degrees in winter, and a stove if it averaged 65 degrees. It is to be hoped that the use of the word “average” will not mislead the reader. A temperature of 45 degrees at one period of the day, and of 85 degrees at another, would give an average of 65 degrees, but it would subject the plants to alternatives of temperature which would be likely to prove detrimental to them; and it may therefore be well to state that the minimum winter temperature for the three types of house may be 40 degrees, 50 degrees, and 60 degrees respectively. It is only the winter temperatures that can be used to afford a comparison, because in summer the temperature of every glass-house goes up to a high figure; in fact, the difficulty is to keep it down, and shading, as well as ventilating, has to be resorted to, even in a house that has no artificial heat whatever.

The conservatory does not change its name, as ordinary glass-houses do, with the degree of heat maintained in it; it is always a conservatory, and nothing but a conservatory. It is obvious, however, that if it is to do full service in winter it must be

heated. To transfer plants from a heated house to an unheated conservatory in severe winter weather would be to ruin them.

Frames and Pits.—We see that a greenhouse, or a glass-house of some description, is a valuable—indeed almost an indispensable—adjunct, to a conservatory; let us now add that a frame is an equally useful supplement to a greenhouse. A frame is quite a low structure. The back is only raised above the front sufficiently to carry off the water. It is consequently a structure in which the plants are close to the glass, where they cannot become “drawn.” It can be moved about, as occasion requires, from one part of the garden to another. It can be raised on to a hotbed of manure, and so be made to serve as a propagator. One of the greatest conveniences of a frame is that, without the hotbed, it serves as a half-way house for tender plants which are to spend part of their time in the greenhouse and part in the garden. Chrysanthemums are one popular example, and Tomatoes another. The young plants undergo in the frame the process of what gardeners term “hardening-off.” If transferred direct from a warm house to the open garden (and the temptation to effect such a transference is very strong when the greenhouse is getting crowded and the weather is warm) failure sometimes ensues, because a sudden change of weather subjects them to a strain for which they are not prepared. The frame “tempers the wind to the shorn lamb.” A clever gardener will make great use of a frame. He will use it for raising plants late in winter, or for hardening them in spring; he will perhaps grow Cucumbers or Melons in it in summer; and he may use it for Violets in autumn and winter. The cost of a frame is not great; a very nice one can be bought for twenty-five shillings; and it is only fair to consider that in connection with the cost of the house. If there is a sum of £20 available for glass, it will be better to spend £15 on a house and £5 on frames than the whole of the money on a house without frames.

A pit is a kind of half-way stage between a frame and a green-

house. You can call it a glorified frame or an abbreviated greenhouse, whichever way you like to look at it. It is generally constructed partly of bricks, on a few courses of which a low frame is fixed, with sliding lights. Such a structure is often established under a greenhouse, running the entire length of it. Its uses correspond to those of a frame. It generally has the advantage of being a little more roomy, but the disadvantage of not being movable. Sometimes, however, a pit becomes much more than a large fixed frame; it becomes neither more nor less than a small sunk stove. Hothouses below the ground level are generally spoken of as "pits" in gardens. They are serviceable for special purposes, such as the cultivation of Cucumbers and ferns, but not for all-round use in growing flowering plants; and amateurs need not trouble about this class of structure.

Glazing.—It is wise to use 21-ounce in preference to 16-ounce glass for all kinds of glass structures, as the greater cost is not excessive. Top putty should be avoided. The squares should be bedded in putty, and then fastened in with small sprigs.

Heating.—When we come to consider plants for glass structures of different classes we see that it is possible to find some pretty flowers that will thrive without artificial heat, but only where expense is a great consideration, or time for attending to a heating apparatus very limited, should a house be left unheated. Want of heat limits the owner severely. He may be without flowers for several consecutive weeks if the winter should prove to be a severe one, and he cannot command a supply at any particular period. Moreover, there are many beautiful plants which he cannot attempt to grow at all. Heat the house, therefore, if it can possibly be done.

Large houses are heated in almost every case by a hot-water apparatus, consisting of a boiler and pipes. Boilers differ considerably, but pipes very little. The boiler may be an upright or a horizontal one; it may be plain or tubular. The pipes will be of cast iron, and will be four inches in diameter. An upright boiler let



MALLOWS

into the wall or woodwork of the house, without a stoke-hole, may be chosen for any structure that does not require more than seventy-five feet run of piping. Above that figure it is desirable to construct a stoke-hole, and use a horizontal boiler. There are almost as many different kinds of boiler as there are of motor-car. Any one who finds a difficulty in choosing from among the various special boilers advertised will be well advised to select a waterway-end saddle boiler. It is a "stock" article with almost every firm of hot-water engineers, and a good one, being powerful and easy to manage. It is quite impossible to say what is absolutely the best of the numerous boilers, suitable for small houses, that are advertised. In the case of all of them success turns principally on skill and care in stoking, and any person with a modicum of common sense can learn to stoke.

The size of the boiler will naturally depend on the amount of piping, and the latter upon the size and temperature of the house. Gardeners have a simple working rule for calculating the amount of four-inch piping necessary for the different classes of house, and we will quote it for the benefit of inexperienced persons. It is to divide the cubic capacity of the house by 30 for a greenhouse, 25 for an intermediate house, and 20 for a stove, taking the result in each case as the number of feet of piping required. The cubic capacity can, of course, be ascertained by multiplying the length of the house by the breadth, and the product by the height. In the case of a span roof, it is hardly fair to take the distance from the floor to the ridge as the actual height; it is fairer to take the height to the eaves, and then add to it half the height from the eaves to the ridge.

The setting of an upright boiler is not so serious a matter that it cannot be undertaken by any handy amateur, but it is safer to have a man down from the maker, or if the distance is too great for that, to refer to a local builder. In the horizontal boilers that course is essential. In any case it should be remem-

bered that the pipes must rise from the boiler to the extent of about an inch in every eight or ten feet, in order to facilitate the flow of the water along the return pipe back to the boiler after it has been round the house and parted with most of its heat. The pipes are connected in various ways, but perhaps most commonly by means of india-rubber rings, which are fixed over the spigot ends, and then forced into the sockets.

Coke broken small, and mixed with cinders from the house fires, is the best fuel for small, upright boilers. It is useless to use large coke or coal, for either will "cake," and the fire go out. Some little study is needed to stoke successfully, particularly in making up the fires the last thing at night, when they have to go several hours without attention. Coke and anthracite coal are both used extensively for large boilers.

Soil.—Most glass-house plants will thrive in a mixture of loam, leaf-mould, and sand; and in order to avoid repetition later on, one or two alternative composts may be given now. When we come to deal with the individual plants we can refer to these mixtures, or indicate a special soil if required. The following may be taken as suitable for any plant dealt with unless a special compost is indicated:—

No. 1.

Two-thirds of fibrous loam.

One-sixth of leaf-mould.

One-sixth of decayed manure.

Mix the above well, incorporating at the same time a quantity of sand equal to about one-eighth of the whole, or half a peck per bushel.

No. 2.

Three parts of fibrous loam.

One part of leaf-mould.

Add sand as before, and likewise one thirty-second part, or a quart per bushel, of superphosphate. The latter takes the place of the decayed manure.

A special word may be devoted to the various ingredients of these two composts. Fibrous loam is far the most important of any constituent of soils for the majority of greenhouse and room plants, and the gardener who is bent upon succeeding will not allow himself to be put off it lightly. It really cannot be properly

replaced by anything else. Some amateurs may consider that if the soil in their garden is capable of growing good vegetables and fruit it ought to be good enough for greenhouse flowers, and consequently may feel free to draw upon it when potting. As to this, two things may be said: first, garden mould rarely contains enough fibre for sustaining pot plants, which, owing to their circumscribed surroundings, need food in a concentrated state; secondly, the garden soil is needed where it is. Fibrous loam can always be bought from a nurseryman, or dealer in garden "sundries," and the price may be about a shilling a bushel. Where only a few plants are being grown this is well enough, but where a large number are being dealt with it is more economical to try and procure a load of turves from a builder, or from some other person who is cutting up grass land. The turves should be placed in a heap, reversed, so as to bring the grass side underneath, and left for nine or ten months, in order that the grass may die. The heap may then be sliced down with a spade as the soil is required for potting. The decayed fibres of turf are highly nourishing to plants.

With respect to leaf-mould, this merely consists of rotted leaves. When the reader treads the soft vegetable mould of a forest he compresses beneath his feet the leaves of former years, which have fallen and decayed. If he collects fallen leaves in autumn, and stores them for a few months in a well-trodden heap in a pit, or some out-of-the-way corner of the garden, they will decay, and give him a supply of leaf-mould. He can, of course, buy it from nurserymen and dealers, in the same way as fibrous loam, if necessary.

As to the decayed manures, the ordinary "rotted dung" of the kitchen gardener is not the kind of substance suitable; what is wanted is the dry, crumbly stuff that comes from a hotbed which has done service for Cucumbers, or Violets, or some other crop, and which is no more disagreeable to use than decayed leaf-mould.

No wet, greasy, offensive stuff, which will not fall into dry flakes, is suitable for mixing in potting composts ; whatever is used should pass readily through a coarse-meshed sieve under a little pressure from the palms of the hands, and leave the latter practically unstained.

Superphosphate makes a fair substitute for decayed manure. What is known to dealers as "mineral superphosphate" is a dark grey powder ; although it has an odour of its own it is not at all disagreeable. It is quite inexpensive. It may be supplemented by liquid manure, used in the way to be described presently.

Potting sand should be regarded as quite distinct from silver or sowing sand. The latter is too fine in texture to be suitable for composts ; moreover, it is relatively dear. Sand for potting should be in large, coarse particles. What is termed "washed river sand" is suitable, and it can be bought from local builders as well as from florists. Sand helps to keep a compost open and aerated. It also probably encourages root action ; certainly it is found to be an excellent component of mixtures for raising seedlings and striking cuttings. In these propagating composts the quantities both of leaf-mould and sand may be increased, and the decayed manure, or superphosphate as the case may be, omitted. The proportion of loam should be considerably reduced.

Pots and Potting.—The most useful sizes of pots to buy are those with the following inside diameter at the top: three-inch, five-inch, eight-inch. The first size will come in for the first potting whether the plants are raised from seeds or cuttings ; the second for the next potting, also for the first and only potting of bulbs ; the third for the repotting of such plants as need a shift from the five-inch. The various pots are known in the trade as sixties, forty-eights, and twenty-fours, from the number of each in a "cast." Those who must manage with two sizes had better drop out the five-inch and eight-inch, and substitute a six-inch ("thirty-two"), which is a very useful all-round pot. New pots ought to be soaked in a tub of water for a few hours, and then stood to



MONKSHOOD (*Aconitum Nap*)
By E. Fortescue Brickdale

dry, before use. The hole in the bottom should be covered with a few pieces of broken pot, arranged so as to overlap each other, and these again with a little moss or leaf-mould, in order to prevent the soil from clogging it, and preventing the egress of water.

Whether for propagating, or for potting rooted plants, the soil should always be pressed firmly into the pots. It need not be made so hard (except in the final potting of Chrysanthemums) that a finger cannot be forced into it, but it should certainly not be left in a loose, spongy state. Generally speaking, a plant requires a shift to a larger pot when its roots begin to coil round the interior, and to protrude at the bottom. In case of doubt no possible harm can be done by shaking a plant out of its pot for examination, provided the soil is moist; if dry, it might fall away and leave the roots bare. The way to perform this little operation is to spread the fingers of one hand over the surface of the soil, letting the stem of the plant pass between them, turn the plant upside down, and tap the rim of the pot steadily on some firm, fixed object until the pot has loosened, and then to lift it off with the other hand. If there is no larger pot available for a plant which has coiled its roots, two inches of the top soil, and some of the side mould, may be broken off, and fresh rammed in to take its place. This is called "top-dressing."

Sowing Seeds and Striking Cuttings.—The method of propagation of each particular plant to be dealt with in the notes which are to follow will be mentioned in the references to it, but to save the repetition of details a little attention may be devoted to them now. In raising those glass-house plants which are propagated by means of seed it will generally be found good practice to sow thinly in a pan (a wide, shallow form of pot) or a shallow box, making the soil very fine on the surface, and covering lightly. In the case of the smallest seeds, such as Begonias and Gloxinias, it is advisable not to attempt to cover them with soil at all, but to sprinkle them very lightly and thinly over a surface of moist silver sand, and then

spread on a half-inch thickness of fresh, clean moss. Whether covered with soil or not it is an excellent plan to place a square of glass over the receptacle, and cover this with newspaper. This will check evaporation, and lessen the necessity for frequent watering. If the soil should become absolutely dry, water must be given, and it may be poured through the moss by means of a rosed can. If moss is not used the soil had better be moistened by immersion, the receptacle being gently lowered into the water nearly up to the brim, and kept there until water shows at the surface, then withdrawn, and held over the tub until the superfluous water has ceased to run out. These methods of watering prevent the washing out of seeds and seedlings, which might easily happen if water was poured on the top. While moisture must be given when really necessary, restraint should be exercised so long as the soil is moist, because a sodden condition is bad. When the seedlings show, moss, glass, and paper should all be removed, as it is desirable that the plants shall be kept sturdy by exposure to light and air. It is from this stage that the greenhouse shelf will prove so valuable for them. There need be no fear of the seedlings damping off if this treatment is given. When they are about an inch high they may be gently raised on the point of a label, and "pricked off" three inches apart in other boxes. When they touch each other in these boxes they will be large enough to be put singly into small pots, and so fairly start on their career as established plants. Seedlings come quicker in bottom heat than without it, and consequently it is a good plan to enclose a section of the hot-water piping with slates; fill it with cocoa-nut fibre refuse kept moist, and so make a propagator of it.

In striking cuttings, the question of bottom heat in a propagator, and of a close, moist atmosphere, turn somewhat on the character of the cutting. If it is of a thin, wiry, woody nature, such conditions are favourable; but if it is thick, soft, and fleshy, they are not. The great majority of cuttings strike best when

the air is excluded from them, and when they have bottom heat. They are generally best when sturdy, short-jointed, and taken about three inches long, just below a joint. They should be pressed in firmly, and the soil squeezed close round the base.

Ventilating.—The ventilation of glass structures is of importance at all times, but never more so than when the plants are quite young. If they are kept sturdy, then they are almost certain to grow up strong and healthy. They should not only be kept as close to the glass as possible from the outset, but have free ventilation, as fresh air is of the greatest moment. It should be made a rule to open the ventilators quite early in the morning—in fact, one may be left an inch or two up all night in summer. If there is a cold wind blowing on one side of the house, ventilate from the other. In the case of frames, where young plants are perhaps being brought on, the lights should be open more or less all day, unless the weather is very cold and boisterous, and they should be removed altogether when it is mild and still.

Watering and Feeding.—We have already commented on the necessity for care in watering seedlings, and we may be almost as emphatic respecting established plants. True, one error may not be vital, but continued mistakes or neglect will be fatal sooner or later. The point that many amateurs cannot be brought to see is that plants do not require water as regularly as animals need food. These persons make the plant's water analogous with their own bread and butter, but the parallel does not hold; it is the soil in the pot rather than the water which represents the analogy. It may be admitted that moisture is essential, but a moment's thought will show that it is not likely to be in such demand in winter as summer, partly because the process of evaporation is much slower, and partly because the roots are less active in drawing upon the moisture and food store in the soil. Lady amateurs have a way of giving their plants water summer and winter as regularly as they give their cats milk, but this is wrong. Water should be

given when the pot rings hollow on being rapped, and never when it sounds dull, whether it be twice a day or twice a month.

Liquid manure will never be required by seedlings or cuttings, or by young plants which have not filled their pots with roots. It can only be used with benefit on plants that are established in their pots, and have pushed roots right through the soil. Even then it should never be given in strong doses. Where the proprietary powder manures are being used, they may either be sprinkled very thinly over the surface of the soil twice a week and watered in, or made into liquid manure by stirring an ounce in a gallon of water, and using twice a week.

Insect Enemies.—The best of plant cultivators are troubled by insect enemies, although perhaps less severely than the worst. Green-fly (aphides) is no respecter of plants. It will work more havoc on a weak specimen than on a strong one, but it will make a strong one gradually weaker, and may even kill it. It attacks almost all kinds of plants. It will fasten on Roses, Cinerarias, and Tulips with equal gusto. Have you a Maréchal Niel on the wall of your conservatory? Beware lest you find, when you cut a bunch of flowers, that the stems are covered with a dense mass of wriggling green insects, which cause you to throw down the cluster, on the point of raising it to your nose for a long, ecstatic sniff, in disgust. Green-fly moves to the attack swiftly. You may be sure one day that a particular plant is free, but you cannot be sure that it will not be overrun three days later. The insect increases at a tremendous rate, and unless checked in an early stage of its attack, speedily becomes master of the situation. And green-fly is not the only pest. Mealy-bug is another plant enemy, more offensive even than aphides. It clothes the stems and foliage with a filthy white mass, making them disagreeable to handle, as well as unhealthy. It does not spread so fast as green-fly, but it is just as dangerous, because it is much more difficult to destroy. It has a way of insidiously attacking roof plants,



RED PHLOX, WHITE JAPANESE ANEMONES, AND EVERLASTING PEAS
By Beatrice Parsons

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which, owing to their position, are not so readily accessible as stage plants, and are less frequently examined. For instance, it may fasten on a *Stephanotis*—a plant for which it has a decided partiality—and make that fragrant favourite absolutely loathsome. When it gets established in a house it generally baffles all the efforts of the cultivator to get rid of it year after year, consequently his object should be to take care that it does not get a firm footing. Red-spider is a tiny mite which forms colonies on the under side of the leaves of many plants, and spins webs. It is almost invisible to the naked eye, but the effect of its operations are only too plain in the loss of substance and green in the leaves, and in the appearance of red or bronze blotches. Thrips is a small, quick-moving insect that may attack either the foliage or flowers of plants. Some plants, notably *Cinerarias* and *Marguerites*, are subject to the attacks of leaf-mining grubs, which hatch from eggs deposited by flies between the upper and lower skins of the leaf. Their presence may be known by the appearance of greyish lines in the leaves.

The foregoing are the most common and troublesome of the insects that attack indoor plants, and now for some remedies. In the first place, we must work on the golden rule of prevention as far as possible, because it saves time, money, and plants. Amateurs should not take up the position that when insects appear certain remedies must be applied; it is better to decide that, as insects are sure to come, preventive measures shall be adopted whether they are seen or not. In recent years the most common means of keeping insects down is by vaporising preparations of nicotine, which is the poisonous principle of tobacco. The substance, and a small appliance for vaporising and distributing it, are sold together in handy packets, varying in size according to the size of the house to be treated. The packets can be bought from all seedsmen and florists, and they are not expensive. One that is extremely well known is the "XL All." Another is West's. Beginning at the

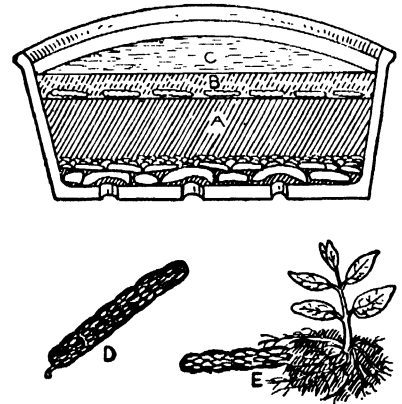
middle of April, the cultivator might practise vaporisation once a month until the middle of October. He may appear to be working in the dark. He may not see any insects, and he cannot follow all the movements of the vapour; but he may depend upon it that there are insects lurking in some corners or crannies, and be equally sure that the vapour will search them out and destroy them.

Another great help in keeping down insects under glass is to provide plenty of atmospheric moisture, and to apply it vigorously. For example, if there are roof plants, souse them once a week with water applied forcibly through a syringe. The water will cleanse the plants on to which it is driven, and, falling in a heavy shower on those on the stages below, will cleanse and freshen them also. Mealy-bug, red-spider, and green-fly are all so seriously incommoded by these vigorous washings that they never get a chance to settle down. It is a dry atmosphere, and freedom from bustling, that gives them their chance.

Plants that are subject to the attacks of leaf-miners—indeed, plants that are attacked by any kind of insect—may be protected by being sprayed over every three weeks or so with a paraffin-oil and soft soap emulsion, which may be made by boiling a pint of soft soap in two pints of water, stirring in, after removal from the fire, half a pint of paraffin-oil, and diluting in five gallons of water. The mixture should be thoroughly worked up by filling a syringe from, and emptying it into, the vessel repeatedly. It is best sprayed lightly on the plants towards evening.

Fungoid Enemies.—There are several fungi which attack indoor plants, but mildew is much the most common. It coats the leaves with a grey powder, and they lose their substance and fall; the plant becoming thoroughly unhealthy, or even dying outright. These fungi, and particularly mildew, are commonly the result of faulty ventilation. They are almost certain to appear if a house is subject to cold draughts, as is the case sometimes when the ventilators are opened at the side on which the wind is blowing. But

they are also liable to come when the air is stagnant, and what we should describe as "close" or "heavy." The cultivator must give due consideration to these points, and act accordingly. Sulphur in some form is the best remedy for mildew. It may be used in the form of the yellow powder known as flowers of sulphur, or through the chemical liver of sulphur, otherwise known as sulphide of potassium. The latter is very cheap, and may be applied conveniently in solution. Dissolve one ounce of the chemical and two ounces of soft soap in five gallons of water, and spray the mixture on in as fine a state as possible. It is best to carry the plants outside the house for the purpose, as the solution will stain paint. The fungoid disease of Chrysanthemums which is known as "rust" may be attacked by the same means. In the case of fungoid, as in that of insect, attacks, success in repelling the disease turns largely upon prompt action.



ACHIMENES

A, compost ; B, tubercles ; C, covering soil ;
D, dormant tubercle ; E, tubercle growing,
in fit state to transplant.

Let us now proceed to consider the beautiful flowers for glass-houses. We shall find that there is no lack of material for all classes of structure. We will take them in alphabetical order.

Acacias are charming greenhouse plants, which bloom in late winter and in spring. They have pretty little balls of yellow blossom borne in great profusion, and are easily grown. *Armata*, *dealbata*, and *leprosa* are three good sorts.

Achimenes.—These plants might well be more extensively grown, for both leaves and flowers are attractive. They make splendid effects in baskets or pans, an ordinary compost being employed.

Amaryllises (*Hippeastrums*).—These have been mentioned under

Bulbs. They are plants of the most brilliant colouring, as the coloured plate shows, and their large, open flowers are of great substance. They bloom in winter and spring, earlier or later according as they are grown in a warm or cool house. Gardeners start them into growth early, and put them in an intermediate temperature in order to get them in flower in February, when



ARUM LILIES

A, A, side slips on large Arum Lily plant C ; B, dark lines showing where to divide the slips, or separate them from parent plant ; D, young plant potted ; E, new growths appearing on rested plant, condition for repotting.

they are the most beautiful occupants of the house ; but they are not really tender plants, and an amateur with an ordinary greenhouse would derive much pleasure from a small collection flowering in spring. Potting bulbs in the same kind of soil as that recommended for Hyacinths, he could start them naturally into growth as his house grew warmer, and have them in bloom in April or May. When they went out of flower he could gradually dry them off, rest them, and start them again the following year. They like abundance of water when they are growing. They may be increased by means of the offsets which form on vigorous plants ; these young growths may be taken off and potted.

Arum Lilies have already been considered (see Bulbous Section), and it need only be added that they are among the most graceful of pot plants. Blooming in winter and spring, they are very valuable. They will thrive in an unheated house, if a newspaper is twisted round them in severe weather, but will bloom later than in a heated structure.

Asaleas are among the most beautiful of greenhouse flowers. They are distinguished by great freedom of flowering, and brilliant colours. They are in the way of being hardy plants, and in mild



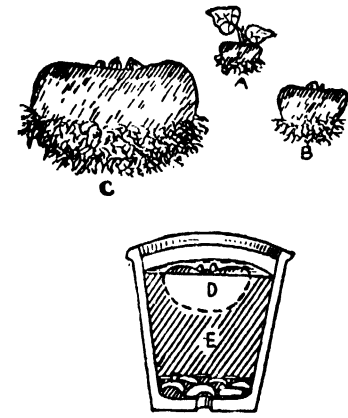
TREE PEONY
By Margaret Waterfield

districts thrive out of doors; but they are not safe in the open air in exposed places. Even if they were, it is quite certain that they would be largely grown under glass. Their comparative hardiness will attract the attention of the owner of an unheated house, who will find them very useful. He can buy them fully set with flower buds if he likes, for Belgian florists export them to this country in immense quantities during the spring, and the prices are low. They are generally standards—that is, plants with a head of foliage and flowers surmounting a clear stem, so that they are suitable for mixing with bulbs in a greenhouse. They enjoy a peaty soil. If kept through the summer they can be stood on a bed of ashes in a suitable corner of the garden.

Balsams are old-fashioned flowers, which have not developed very much in modern times, the attention of florists having been concentrated on other things, notably Begonias and Carnations. But they are quite good enough, even as the old florists left them to us, to be grown, and it is no small thing in their favour, from the point of view of the amateur who has only an unheated house, that they are annuals, can be flowered from seed in a few weeks, and after blooming need not be preserved. The person who wants Balsams should look up a seed catalogue in spring, and he will probably find two or three strains of double Balsams offered, including Camellia-flowered, and this one will suit his purpose admirably. A packet is not likely to cost more than sixpence, and a number of plants can be raised from it by sowing an inch apart in fine, moist soil in a pot, pan, or box. Balsams are among the easiest of plants to grow, and if watered when required, and given plenty of air, they will grow up strong and sturdy. They will develop a thick, succulent stem, on which double flowers as large as crown pieces, and very brightly coloured, will stud themselves closely. Short side shoots will form on strong, healthy plants; and these, too, will be clothed in flowers.

Begonia.—We considered Begonias under Bulbs, so far, at least, as the tuberous ones are concerned. But we must remember

that Begonia beauty does not begin and end with that magnificent class. There is another great section called the fibrous rooted, because it does not form tubers, and it includes a large number of species and hybrids, not one whit inferior to the tuberous in beauty, glorious plants though the latter are. What Begonia, for example—what plant of any genus, if it comes to that—is more beautiful than that exquisite hybrid Begonia Gloire de Lorraine? The white form, Turnford Hall, is also a lovely plant. Other charming kinds are Gloire de Sceaux, Weltoniensis, and



TUBEROUS-ROOTED BEGONIAS

A, a small tuber commencing to grow, for boxes or pans; B, one larger for small pots; C, a strong tuber which will bloom freely; D, the tuber C potted in compost E.

semperflorens rosea. These fibrous-rooted Begonias have another great recommendation in addition to their beauty, they flower in winter and spring. Gloire de Lorraine may be had in bloom soon after Christmas, and be kept fresh and cheerful—a light, fairy mass of softest rose—for several weeks. It is frequently grown in a wire basket, and suspended from the roof; and perhaps it is under such conditions that it is seen to the greatest advantage. After it has bloomed it is gradually dried off, and cut back to short stumps. After a short rest it is given a little heat, the stumps are syringed, and fresh growth starts. When the shoots have pushed two or three inches long they are taken off as cuttings, struck, and made into a fresh supply of plants. Another method of propagation is to take a large,



BEGONIA GLOIRE DE LORRAINE

A, old stems cut back; B, young shoots; C, young shoots inserted as cuttings.

matured leaf, nick the mid-rib in several places, and lay it on the surface of a pot of soil; or (and this has been found to answer well) to retain the leaf-stalk when the leaf is picked off the plant, and insert it in the soil up to the base of the leaf; making what might be called a leaf cutting. These are all interesting methods of increasing a plant which, when it first came out, puzzled the propagators because it did not seed, and flowered so profusely that it was impossible to find shoots suitable for making cuttings.

The fibrous-rooted *Begonias* like the temperature of an intermediate house. They will thrive in the mixtures of soil previously recommended. Most of them are easily propagated by cuttings.

Bougainvillea.—The *Bougainvillea* is a very vigorous plant, which rambles freely, and produces a profusion of beautiful bracts, that are commonly spoken of as the flowers. The real blossoms are of no beauty, but the bracts are very gay, the colour being rosy lilac, deepening in some forms to brilliant rose. In warm countries the *Bougainvillea* will thrive out of doors, as in Algiers, where the splendid specimen shown in the coloured plate was growing, but in this country they are best planted out in the border of an intermediate house, and trained up the roof. A number of side growths will push from the main stems, and flower abundantly; after blooming they can be pruned in, and a fresh crop will come the following year. The plant does not require any special soil, and is easily propagated by cuttings. The variety *spectabilis superba* is about the best, but *glabra* is the more grown.

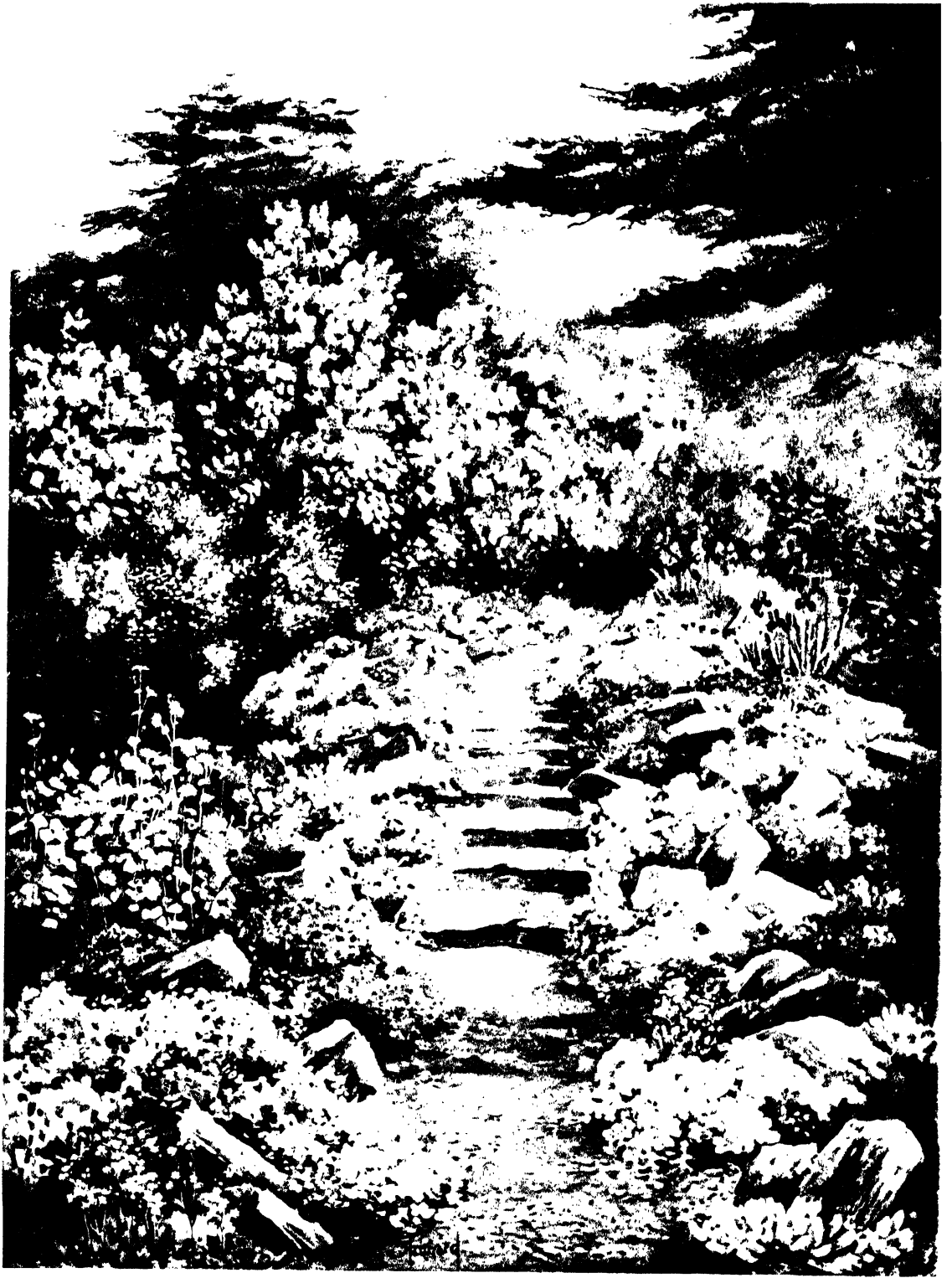
Bouvardia.—A great favourite, for not only does it produce its pretty blooms in abundance, but they are pleasantly perfumed. It flowers best in an intermediate house, but it may be grown in a frame throughout the summer. Ordinary potting soil suits it—indeed, it is quite an accommodating plant, giving very little trouble. It may be propagated by cuttings of the stems, but bits of root strike so freely that this method of increase is now generally

practised. Priory Beauty and Alfred Neuner are two charming varieties of Bouvardia.

Cacti.—See separate section.

Caladium.—One often sees in groups of hothouse plants at the exhibitions, or in the botanic gardens, bold plants with large, shield or heart-shaped leaves, very brilliantly coloured. These are Caladiums. It is for their foliage, and not for their flowers, that they are grown. Except in the case of one or two species, notably the pretty silvery leaved one called argyrites, they are not quite suitable for small structures, as they are vigorous growers; and in any case they should have the temperature of a stove-house. They are tuberous-rooted plants, like Gloxinias; and are dried off in autumn, stored for the winter, and re-started in spring. Large tubers, grown in the normal potting mixture, and given a moist, warm atmosphere, will make enormous leaves. Small tubers will form, and may be grown on by stages.

Calceolaria.—The Calceolaria of the flower garden is familiar to all supporters of the bedding system in the form of a small, yellow, pouch-shaped flower, growing on a low plant with roughish, soft green leaves. The Calceolaria of the florist has the same form of flower, but the size is immensely greater, and the colours are more varied. The former is called the shrubby Calceolaria, because it retains its stems throughout the year; the latter is known as the herbaceous Calceolaria, because it dies down at the end of the season, and springs again the following year. The shrubby Calceolaria is propagated by cuttings, the herbaceous by seeds. It is the rule to dispense with old plants of both sections after flowering, and to raise fresh every season. The cuttings of the shrubby are inserted in October, the seeds of the herbaceous are sown at mid-summer. The latter is far the more important section. In years gone by the yellow Calceolaria was much in demand for "ribbon borders," but fashion has changed, and it has lost its vogue. The herbaceous Calceolaria is too valuable a plant for early summer



A ROCK GARDEN
By Lilian Stannard

blooming to be passed by. The young plants should be grown in a frame during summer, and brought into the greenhouse or conservatory in autumn, before sharp frosts set in.

Camellia.—We have in the *Camellia* one of the noblest of conservatory plants. Its charm lies partly in the large, glossy foliage, and partly in the symmetrical and beautiful flowers. Everybody admires this magnificent shrub, and the worst criticism that has ever been levelled against it is that the flowers have a somewhat stiff and artificial appearance. This is due to their perfect contour, great substance, and wax-like texture. The *Camellia* is almost hardy, and in mild counties like Cornwall it lives for many years in the open air. In most parts of the country it requires the protection of a greenhouse. It is not always satisfactory when grown in pots in a small house, because, although it grows healthily, it often casts its flower buds. This does not happen, as a rule, when it is planted out in a conservatory. The trouble is doubtless due to some error in watering, of which the grower may be unconscious. Certainly great attention to watering is needed, and while the plants must not be regularly watered at periods when the soil is moist (which would have the effect of rendering it sodden), it must never be allowed to remain absolutely dry. The normal mixture of soil will do, but it is an advantage to omit the leaf-mould and decayed manure and substitute peat, which may be used in equal proportions to the loam. Propagation may be effected by striking cuttings in summer, or by grafting.

One of the most beautiful *Camellias* is the double white (*alba plena*). The coloured plate shows a small plant of this growing behind an orange *Clivia* in the greenhouse at Kew. These two plants formed a charming picture in February and March 1908, and their effect was enhanced by a plant of the charming *Jasmine* (*Jasminum primulinum*) near. Other beautiful varieties of *Camellia* are: C. M. Hovey, crimson: Donckelaari, crimson and white,

semi-double; Lady Hume's Blush, flesh; and Reine des Beautés, rose.

Campanula.—Most of the Campanulas are purely flower garden plants, but the blue pyramidal (*C. pyramidalis*) and its white variety, alba, are beautiful plants for greenhouses, conservatories, and lofty, glass-covered porches or corridors. They are hardly suitable for the small, amateur's greenhouse, because they may grow from five to seven feet high. They are raised from seed sown in spring, grown in medium-sized pots until the following spring, and then transferred to large pots. They will flower in summer, and can be discarded after blooming in favour of young plants.

Canna.—The brilliant Canna was referred to under Herbaceous Plants, and its value for the flower garden was pointed out; but we must not forget how useful it is for greenhouses and conservatories also. The tubers are potted in the normal soil in spring, and if convenient may be put into a warm house until they are growing freely, and then transferred to the conservatory or greenhouse, but this is not essential; it is only advantageous in expediting the flowering. After blooming the plants may be gradually dried off, and the tubers stored for the winter. If increase is desired, the tubers may be divided when they start growing in spring. Cannas want an immense quantity of water when in full growth, especially if growing in comparatively small pots; liquid manure will also be of great benefit to them.

Carnation.—See separate section.

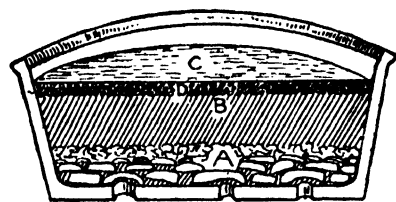
Chrysanthemum.—See separate section.

Cineraria.—The Cineraria has been one of the greatest ornaments of greenhouses for many years past, and its popularity only grows with time. Had there been any decline in the favour which they enjoyed when the beautiful florists' varieties reigned supreme, it would have been arrested when the charming Star varieties (see coloured plate) became popularised. They came from an old kind which had been little grown except in botanic gardens, and their graceful

habit, combined with their remarkable freedom of flowering and brilliant colours, soon made them great favourites. The Cinerarias are fragrant as well as beautiful. Although they are not fully hardy, they are so far from being tender that they will thrive in a frame until autumn, and afterwards in a cool greenhouse. No indoor plant is easier to grow. Seeds are sown towards the end of spring, and the young plants grown in a frame through the summer, receiving such attention in watering and potting as is called for. The only thing likely to give trouble is green-fly, which worries Cinerarias incessantly, and must be kept down rigorously, or it will spoil the plants. Perhaps the most simple plan of keeping it in subjection is to spray the plants with a decoction of quassia water once a week throughout the summer. The reader should buy a pound of quassia chips at a chemist's, and soak a handful in a gallon of water for a night.

Clivia (Imantophyllum).—There is not a great range of colouring in the Clivia, the prevailing shade being orange, but lighter and darker varieties than the type (*Clivia miniata*) have been raised, so that one may get salmon and saffron shades if one will, and others approaching scarlet. The plant has long, bright green, strap-shaped leaves, and bears its flowers in a large umbel at the top of a thick, strong stem in winter and spring. The coloured plate shows a plant associated with a white Camellia at Kew, where it was a brilliant feature of the greenhouse towards the close of winter. It thrives in a room. Normal soil suits, and propagation is easily effected by division.

Coleus.—The majority of the Coleuses are grown for their foliage, the flowers being of no value, but there is one notable exception—the blue, winter-blooming species called thrysoideus,



CINERARIAS

A, drainage in pan; B, compost; C, surface of sand; D, on which the seeds are sown; E, sowing seeds out of a paper funnel or spout.

which throws up tall, slender flower stems, crowned with a cluster of pale blue blossoms, in winter, and may be had in bloom at Christmas in a warm greenhouse. The leaf Coleuses are well worth growing for greenhouse decoration in summer, as their tints are very bright. They thrive in normal soil, and may be propagated either by seed or cuttings. The young plants should be stopped by nipping off the top when a few inches high, and the side shoots resulting stopped again. This has the effect of making them bushy.

Cyclamen.—There is no more beautiful greenhouse plant than the Persian Cyclamen, which produces its lovely flowers during winter, and may be had in bloom at Christmas. The reader doubtless knows the plant, with its fleshy, heart-shaped, marbled leaves standing in a thick, flattish cluster a few inches above the soil, and its graceful flowers hung like reversed bells on succulent stems. The coloured plate shows the plant well. In the grandiflorum (large-flowered) class the blooms are nearly double the size of the ordinary persicum. There is also a section with fringed edges, that is both distinct and beautiful. The pure white variety is one of the most valued, but a rich crimson is also very popular. There are other colours. The Cyclamens thrive in the normal mixture. Propagation is effected by means of seeds, which are sown in summer and early autumn for flowering in the autumn and winter of the following year. The plant forms a tuber, technically called a "corm." They grow slowly in the seedling stage, but fairly rapidly throughout the summer if abundance of moisture is provided. They enjoy humidity in the atmosphere as well as at the roots—indeed, without both they will progress but slowly. The plants can be preserved for several years if required. The old school of growers used to dry them off, but some of the most successful modern cultivators keep them growing constantly. Others do not preserve the plants in any state, but raise fresh ones from seed every year. These growers do not develop such



PERSIAN CYCLAMEN
By E. Fortescue Brickdale

large specimens as those who keep old plants, but they obtain plants of a useful size, and very large flowers.

Cytisus or Genista.—There is a plant, beloved of market men, which forms a dense head of very small leaves and bright yellow, fragrant flowers, and is at its best in spring. It is often sold under the name of *Genista*, but is in reality a *Cytisus*—species *racemosus* or *fragrans*. This is one of the most useful of greenhouse plants for the amateur gardener, because it is very easy to grow, is brilliant in colour, and retains its beauty for a considerable time. It may be raised from cuttings, stopped once or twice to make it bushy, and subsequently kept several years by cutting it back after flowering. It will grow in the normal soil.

Daffodils and Narcissi.—See Bulb section. The amateur must not overlook the value of these beautiful hardy plants for his greenhouse. They will do good service for unheated houses. Popular trumpet Daffodils like *Horsefieldii*, *obvallaris*, *Henry Irving*, *Golden Spur*, and *Empress*; charming chalice-flowered sorts such as *Sir Watkin* and *Duchess of Westminster*; and the Poet's *Narcissi*, can be grown either in pots or china bowls filled with peat-moss fibre; and they will do splendid service in spring.

Deutzias.—The *Deutzias* are hardy shrubs, and are generally kept for garden cultivation, but there is one species—*gracilis*—which is cultivated almost exclusively under glass as a greenhouse plant. It can be bought from bulb-dealers in autumn, not as a bulb, like *Hyacinths* and *Tulips*, but as a clump of roots. It may be potted and treated generally in the same manner as bulbs, and it will wreath itself in white flowers in winter, earlier or later according to the temperature of the structure. Growers who want early bloom, and have the necessary convenience, will force it in a warm house. The plants can be kept from year to year by standing them on a bed of ashes out of doors for the summer, and pruning and repotting in autumn. Or fresh plants can be raised by striking cuttings of the shoots.

Dipladenia.—A beautiful plant for the roof of a stove, or for training round a trellis in a pot. Different species and varieties have rose, pink, crimson, or white flowers, large, expanded, and showy. If grown in a warm, moist house the plant will be in beauty for a considerable time. It likes a compost in which peat predominates, but the latter should be stiffened up with some loam. It can be propagated by cuttings of the young shoots when it starts growing in spring, if bottom heat is available.

Erica (*Heath*).—In years gone by what were termed hard-wooded plants enjoyed high favour, but that is hardly the case nowadays. The Heaths (*Ericas*) were, and are, the most esteemed of this class, once so important, but now ignored by the majority of greenhouse owners. They are evergreens, and bear their slender, eardrop-like flowers on the main stems. They are unquestionably most graceful plants, and it is quite probable that they would have maintained their hold on the public to this day but for two things—their slow growth, and their extreme impatience of over or under watering. Some nurserymen succeed with them by growing them together in one house, and putting them under the charge of an experienced man. Amateurs cannot afford this luxury. If Heaths are grown at all they have to make shift with other plants, and submit to the treatment which their neighbours receive. Sometimes this means that they get too dry once or twice, or are tended by one of those indiscriminating persons who like to flood everything they grow with water twice every day, irrespective of season and weather; in either case the Heaths promptly die. The normal compost does not suit *Ericas*. They require peat, and nothing but sand need be added to it. Propagation is effected by striking young shoots in summer.

Eucharis.—*Eucharis amazonica* or *grandiflora* is a stove plant which throws up a cluster of broad, dark green, glossy leaves from a large bulb, and bears pure white flowers on the summit of a thick stem in winter. It is a beautiful plant, and a great favourite with those who have a hothouse. It will thrive in the

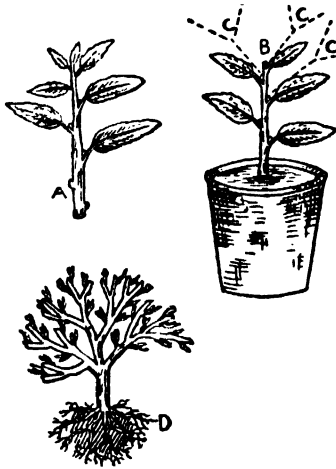
normal mixture, and may be propagated by taking the offsets which form and growing them on. It sometimes falls into ill-health in spite of correct heat and general treatment; when this happens, the presence of a mite on the bulbs must be suspected. This little enemy is accountable for a great many failures when its presence is entirely unsuspected. The way to attack it is to dissolve three ounces of liver of sulphur (sulphide of potassium) in a gallon of water, and soak the bulbs in it for a quarter of an hour, then spread them to dry and repot them.

Francoa ramosa.—Some people may know this under the name of the Bridal Wreath—a pretty, popular term, which may be expected to attract the attention of the fair sex. The plant is well worthy of being grown. It throws up a long, arching stem, well furnished with charming white flowers. It is a herbaceous perennial, and so nearly hardy that it will thrive out of doors in mild districts, and may be grown in a cool greenhouse. It makes a charming window plant. It thrives in the normal soil, and may be propagated either by division or seeds.

Freesia.—This beautiful and fragrant flower is dealt with in the Bulb section.

Fuchsia.—One of our old-time favourites, the popularity of which has not diminished in any marked degree, in spite of the rise of other flowers. Perhaps new varieties do not flow as freely as of yore, but that is partly due to the fact that the plant has already improved so much that further progress is difficult. We really have a very good selection of sorts from which to make a choice, and need not crave for fresh introductions every year, especially if we are trying to keep pace with the output of certain flower garden plants, such as the Dahlia and Sweet Pea. Every owner of a greenhouse likes to have a few Fuchsias, and when they are fully grown and well bloomed he is not likely to have many things more attractive. They are not difficult to manage, but, as many cultivators of them know, they are apt to cause disappointment by casting their flower buds. This is

commonly due to mistakes in watering, and if the hints that were given in the notes on this important subject in the early part of the chapter are followed, it is not likely that a great deal of trouble will ensue. Alternate stages of absolute dryness and soddenness are bad, and a uniform degree of dampness is desirable. The normal soil suits Fuchsias quite well. They are generally propagated by cuttings in spring. These are taken from old plants which have been kept



FUCHSIAS

3, point of cutting (when pinched off; C, C, C, the three resultant shoots again stopped causing six shoots to grow; D, old plant ready for repotting after being pruned, and ball of soil reduced.

in a dry state throughout the winter, which have been pruned in spring, and which have been syringed to insure a strong break. The cuttings are made of the young shoots, being taken off when about three inches long, inserted firmly in sandy soil, and preferably put under a handlight or bell-glass. They are soon rooted, and young plants thus raised are generally more satisfactory than old ones, which, however, may be grown on and flowered if desired. The young plants would run up tall and straggly if left to themselves, and it is wise to stop them when they are about six inches high, and the resulting side shoots may be stopped in turn when

four inches long if much branched plants are wanted. The nipping-off of the growing tip with finger and thumb suffices for stopping. The pinched plants will be compact and bushy, will flower freely, and will remain in beauty a long time if carefully watered, and supported with liquid manure. When they go out of bloom towards the end of summer the seed pods should be picked off, and the plants gradually brought into a dormant state by diminishing the supplies of water. They may be kept dry in a cool but frost-proof place for the winter. The purchaser of a collection of Fuchsias should get both single and double varieties, and different colours.

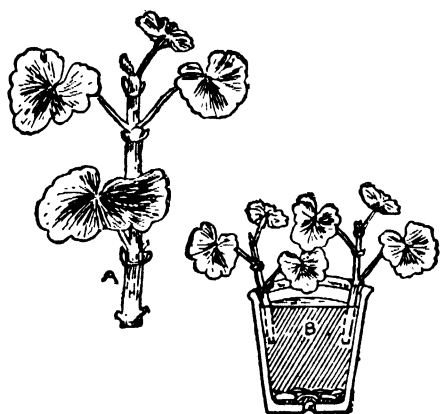


The following are excellent sorts, providing each of these requirements. *Doubles*: Champion of the World, Phenomenal, White Phenomenal, and Miss Lucy Finnis. *Singles*: Beauty of Trowbridge, Countess of Aberdeen, Lye's Excelsior, and Rose of Castile.

Gardenia.—Everybody knows this beautiful, pure white, highly perfumed flower, but the partiality of the plant for a warm house debars many people from growing it. While not absolutely fastidious, it asks for certain requirements to be met. It enjoys a comfortable degree of heat, such as that of a stove, and abundance of atmospheric moisture. It likes a free root run, and on this account often does better when planted out than when kept in a pot. At the same time, if young plants are raised every year (a plan adopted by many successful growers in preference to keeping old plants from year to year), they succeed admirably in six-inch pots. While it will grow in the normal mixture, it prefers peat to leaf-mould, and consequently the former may be added to the compost instead of the latter. Lastly, it needs to be kept quite free from mealy-bug. Cuttings made of the young shoots strike readily in January if placed in bottom heat.

Geranium (Zonal Pelargonium).—Once the reigning queen of the flower garden, the cheerful Zonal has declined in favour with a large section of garden lovers; but even if we dispense with it in the flower garden we need not do without it under glass. To make an order for entire expulsion would mean depriving ourselves of a plant that may be had in full bloom right through the dull days of winter, and so lighten up our greenhouses and conservatories at a period when they might otherwise be bare. In spite of the hard things that are said about the Zonal Geranium by flower gardeners of the modern artistic school, it is not by any means a plant to be condemned indiscriminately. In no plant grown do we get a more marked persistency of flowering, and more brilliant and varied colours. It will bloom at midwinter as readily as at

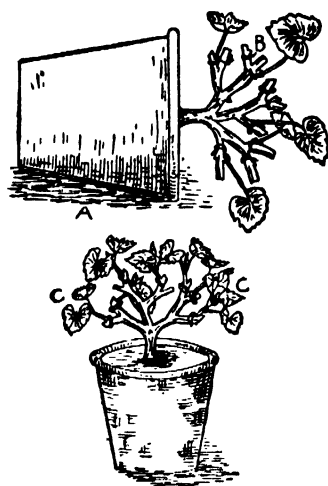
midsummer if it is properly managed, and given a light, warm greenhouse or conservatory. Those who have two or more houses



PROPAGATING ZONAL PELARGONIUMS
A, cutting prepared; B, cuttings inserted.

can have successions of plants if they like, and so have flowers right through the winter and spring. Propagation is easily effected by means of cuttings of young growing shoots, taken off about three inches long, just below a joint, in April or May. They must not be kept moist and close, like most cuttings, or they will damp off. Each cutting may have a separate small pot, filled with sandy soil made quite firm; or several cut-

tings may be put in a large pot, in this case being inserted just clear of each other all round the sides. When they begin to grow they may have a small pot each, in which they may remain until they have filled it with roots, when they should be transferred to five or six inch, using the normal soil, and making it quite firm. There is no need to keep them under glass during the summer; they will be better in the open air, so long as they are stood on a bed of ashes to keep out worms, and are not forgotten in dry weather. They may be placed under glass towards the end of September. They will probably begin to throw up flower stems at once—indeed, they may do so while in the garden; but if good winter blooming is desired, these should be picked off as fast as they show until November or December, when they may be allowed to come into flower. They ought to be strong plants by



SHOW, OR FANCY PELARGONIUMS

A, old plant cut back, pot laid on side, plant resting; B shows where old stems were cut back; C, C, young shoots growing.

that time, and if watered carefully and fed with liquid manure will give splendid trusses of bloom, large in size and lustrous in colour. When spring comes, fresh cuttings may be taken for the next winter's display. The old plants will come in useful for tubs or vases in the flower garden, where they may be planted in the early part of June, and where they will do good service.

Although the Zonal Geranium is so old a flower, and novelties have flowed in a steady stream for many years, there is still a demand for them, and they come. But we already have such beautiful material that the everyday Geranium lover can well afford to leave novelties alone, and stick to established favourites. Here are a few charming varieties, embracing a suitable diversity of colours. *Doubles*: Colossus, crimson; Californie, orange; Rosa Bonheur, pink; Alsace Lorraine, magenta; Pierre Loti, rose; King of Denmark, salmon; Raspail Improved, scarlet; and Miss G. Ashworth and Hermione, white. *Singles*: Lord Rosebery, crimson; Sunbeam, orange; Gertrude Pearson, pink; Blue Peter, magenta; Duchess of Portland, rose; Coleridge, salmon; General French, scarlet; and Niagara and Snowstorm, white. All are good and cheap.

Gladioli may be drawn upon for the greenhouse, as one or two, notably Colvillei and its white variety, are suitable for early flowering in pots. They may be treated like bulbs, such as Hyacinths.

Gloxinia.—A magnificent tuberous plant, with large, expanded bell-shaped flowers of the most lovely colours. It responds to the same treatment as Begonias, being raised from seed in the first place, and then preserved from year to year by drying off and restarting the tubers periodically. Those who have a fair amount of glass accommodation will probably make the most of this splendid plant by sowing seed at different periods, and so insuring successions. Nice flowering plants can be got in six to eight months from the time of sowing.

Heliotrope.—The “Cherry Pie” of our forebears is too familiar to need any description. Its delicious perfume endears it to every one. It is quite an easy plant to grow, and no one who has a warm greenhouse or intermediate house need pass it by if he wishes to have it. Many grow it out of doors during the summer, and those who do so can propagate it by means of cuttings, which may be taken in September or October from growing shoots. It also comes readily from seed, which may be sown in spring. The normal soil suits it. To get nice, bushy plants it is advisable to stop the shoots once or twice, as in the case of Fuchsias. One sometimes meets with old plants of Cherry Pie planted out in large conservatories, and covering a considerable expanse of wall. When in full bloom they fill the house with delicious odours, and may be cut from freely. Miss Nightingale, White Lady, and Adèle are three charming varieties which may be increased by cuttings. Seed is procurable of the old light blue species *peruvianum*, which is deliciously sweet.

Hyacinth.—See Bulb section.

Hydrangea.—A somewhat stiff and formal plant this, and yet a popular market favourite. Its large, rounded head of pink blossom makes it very conspicuous. The one so largely grown for market is *hortensis*, and there are several varieties of it, notably the white one called Thomas Hogg. It thrives in the normal soil. Propagation is by cuttings, which may be taken from growing shoots in spring, or from growths with flower buds in autumn. The former may be grown in a frame in summer, potted in August, and kept out of doors until the end of September, when they may be put in the greenhouse. If early bloom is wanted, they may be subjected to gentle forcing in spring.

Jasmine.—Several of the Jasmynes are flower garden plants, but all are not hardy—in fact, one or two of the most beautiful require a stove-house. The species *gracillimum* is a case in point; this is a beautiful white Jasmine. *Grandiflorum*, also white, thrives in a



CLIVIA MINLATA, WITH WHITE CAMELLIA AND
JASMINUM PRIMULINUM

By Beatrice Parsons

greenhouse, as does primulinum, cream to yellow, a charming kind, with very large flowers, and thriving as a bush in a large pot; a plant so grown in the greenhouse at Kew forms a part of one of our coloured plates. Sambac, white flowered, is a hothouse species; both it and its double form are popular plants. With the exception of primulinum the Jasmynes are grown as climbers. They are frequently planted out in a bed, and trained up a pillar. They will thrive in the normal soil, but enjoy a little peat. Propagation is effected by cuttings, which should consist of firm young wood with a base of older wood; they root with the greatest certainty if kept close under a handlight or bell-glass. To get the finest flowers some pruning should be practised, the young shoots which have bloomed being cut out to make way for new wood. At the same time, it is not desirable to cut the plants as severely as exhibition Roses; allowance should be made for the free, graceful growth which is so desirable.

Lapageria.—The *Lapageria* is one of the most beautiful of roof plants for intermediate and cool houses. The flowers are tubular, three to four inches long, and one to two inches across at the mouth. The type is rose, and there is a white variety of it. They are of great substance, and the white is quite wax-like in its texture. The writers once had to do with a remarkable plant that covered the roof of a long glass corridor, and bore thousands of lovely flowers every year. The *Lapageria* likes a peaty rather than a loamy soil. Propagation is by layering, but it is not often that many plants are wanted, as one will cover a considerable area.

Lilac.—The old Lilac of the flower garden is so sweet and popular a flower that it is natural to feel an interest in the new hybrid forms which come out from time to time. These are much larger than the old favourite, and just as sweet; moreover, they give us quite new colours. They are so bright and fragrant, and so well adapted for conservatory adornment, that it seems a

pity to restrict them to the flower garden. It is becoming more and more common to lift small plants in autumn, pot them, and gently force them into bloom. After flowering the bloom heads are cut off and the plants put out again, or the pots are plunged in ashes in a spare corner for the summer. The normal soil suits them. Propagation is effected by cuttings or by grafting. Among many beautiful varieties the following may be named: Charles X., lilac; Madame Lemoine, double white; and Rubra de Marly, red.

Lilies.—See Bulb section for notes on *Liliums* and Lilies of the Valley. The Scarborough Lily (*Vallota purpurea*) is a brilliant scarlet bulb, which is much esteemed for greenhouses, and is often grown in a window. It is easily managed, thriving in the normal soil. The best time for potting is in early summer.

Mignonette.—Our fragrant flower garden favourite must be pressed into service as a pot plant, more especially as there are several varieties of it admirably adapted to pot culture, notably Miles's Spiral, Parsons' White and Machet. When Mignonette is grown in pots as excellently as the market-growers produce it, it is as handsome as well as a sweet flower. It is best to sow about a dozen seeds on the surface of the soil in a six-inch pot, and thin them to half-a-dozen of the strongest plants at about equal distances apart. This may be done at intervals of a few weeks right through the year, in order to get a succession of bloom. With a little attention to staking and tying, charming pots of deliciously scented flowers can be got.

Musk.—Another fragrant favourite, easily grown from seed, and making a very pretty object when trained on a small, neat trellis of split laths in a pot. If one has a plant, some pieces of the root-stock may be set an inch apart in a six-inch pot. If not, seed may be sown in the ordinary way in spring. The Musk likes moisture and shade.

Myrtle.—Myrtles are strong, free-growing plants, and hence are not suitable for small greenhouses, but they are well adapted

for large, airy conservatories and corridors, where they may be grown in large pots or tubs. They are generally esteemed for their fragrant foliage, and the white flowers are not particularly attractive. The plants thrive in the normal mixture, and with due attention to watering will live for many years.

Oleander (Nerium).—The Oleander is conspicuous by its large, symmetrical, brilliant flowers. It has the reputation of being what gardeners call a “dirty” plant—that is, it is much worried by aphides, and some refuse to grow it on that account, but if the course of action recommended under Insects is adopted there ought not to be any serious trouble. It is a plant to grow for large, airy houses, in which it may be encouraged to grow to a considerable size. It will grow very well in the normal mixture, but enjoys some peat in the compost. It may be increased by cuttings.

Orange.—Small Oranges make very pretty greenhouse ornaments when they are grown in pots, and are well furnished with fruit. Many people raise them from pips, and are disappointed that they do not get fruit; the fact is, seedlings are generally barren, but they can be transformed into fruitful plants by uniting to them a shoot from a plant which bears fruit. This is effected by the process known as inarching. A slit is made in the stem of the plant which does not bear, and a corresponding slit is made in one of the shoots of the fruitful plant. The two parts are brought together and bound. When they have united the two plants are cut apart. Oranges succeed in the normal soil.

Pancratium.—*Pancratium fragrans* is a beautiful, sweet, white-flowering stove bulbous plant, which blooms in summer and early autumn. The perfume and purity combine to make it a great favourite with owners of hothouses, and fortunately it is not difficult to grow. With the addition of a fourth of peat, the normal compost will suit it perfectly, and it may readily be increased by offsets.

Petunia.—The fringed single and double forms of this flower garden favourite are excellent plants for the greenhouse. The florists now have remarkably fine strains of the doubles, the flowers being immensely large, and most richly coloured. When these are well grown they make very handsome specimens. They are almost invariably treated as annuals, being raised from seed and flowered in the course of a few weeks. The normal treatment, both as to sowing and soil, will suit them admirably.

Plumbago.—*Plumbago capensis* is a popular greenhouse plant, and sometimes finds its way into a room window, grown in a pot, and trained on a trellis. It is a vigorous plant, and is often planted out in large houses, and trained up pillars, where it produces its blue flowers freely in summer and early autumn. The young shoots may be pruned in closely after flowering, as better flowering wood forms when the plant is thinly grown than when it is crowded with shoots of all sizes. It may be propagated by cuttings in spring, and grown in normal soil. The species *rosea* is also a popular *Plumbago*, and may be had in flower in a warm greenhouse in winter by striking cuttings in spring.

Poinsettia.—The flat, scarlet bracts of this plant, taking the place of flowers, are most brilliant, and cause it to be a great deal sought after by gardeners, who take short pieces of the old stem in spring, and strike them in bottom heat; or strike cuttings in late summer for winter blooming. Given the temperature of a hothouse *Poinsettias* thrive in the normal soil, and when in full beauty no flowering plant will be more brilliant.

Primula.—The Chinese Primrose (*Primula sinensis* of botanists) is one of the most popular of all greenhouse plants, and no surprise can be felt at this when a good collection is seen in full beauty, for the plants have handsome foliage, from the centre of which rises a sturdy stem six or eight inches high, crowned with a cluster of round, fringed flowers, ranging in colour from white to flesh, pink, salmon, rose, and crimson, and also comprising



MEGASEA AND PRINULA KEWENSIS
By Beatrice Parsons

shades of blue. Bearing in mind that we can get *Primula* beauty at mid-winter, and that without the aid of a hothouse, we recognise how valuable the plant is. Many growers take care to sow successions in March, April, May, and June, so as to get regular batches of plants in flower over as long a period as possible. The seed is rather dear, but a good strain is worth what it costs. The normal treatment as to sowing and soil suits perfectly. The plants are best in a frame during the summer, where they can be given abundance of light and air. If they are grown in a greenhouse, care must be taken to keep them close to the glass while they are small. There are other valuable *Primulas* for indoor flowering besides the Chinese. *Floribunda*, with yellow flowers in spring; *kewensis*, a yellow-flowered hybrid that blooms in winter; and *obconica*, lilac, spring flowering, are three particularly desirable ones. *Obconica* is now represented by many varieties, differing in colour from the parent. It is a very free-flowering, bright, and easily grown plant, but gives trouble to some growers by causing a painful skin-rash. Gloves should be worn when it is handled by those who are subject to this affliction.

Rose.—See special section.

Salvia.—The brilliant *Salvia splendens* is a well-known, winter-blooming greenhouse plant, and it is so easily grown that it ought never to be overlooked by amateurs. Its flowers are borne in great profusion, and are of a vivid scarlet colour. But it is not the only winter-blooming *Salvia*. *Heerii*, also scarlet, is another that will flower in the greenhouse in the dull season. There are, too, several fine varieties of *splendens*, one or two of which may be preferred to the type. *Bruantii*, for instance, is splendid, and *grandiflora* is also excellent. There are two good blue *Salvias*. The best known is *patens*, which has flowers of a deep "Oxford" blue, and is a very useful plant, but it is a summer bloomer. *Azurea*, also blue, flowers in summer and autumn. There is a beautiful rosy red *Salvia* named *Bethelli*, which blooms in summer.

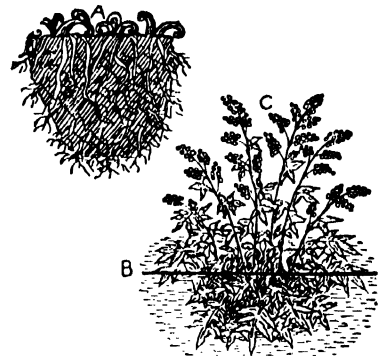
All these thrive in the greenhouse in the normal compost. They are propagated by cuttings towards the end of winter, but the invaluable splendens comes well from seed.

Schizanthus (*Butterfly Flower*).—Beautiful plants are these, with abundance of light sprays, densely clothed in bloom. There are no plants more free-flowering, none more elegant, though many more brilliant in colour. They come readily from seed, and will flower in an unheated greenhouse in late summer and early autumn if sown in spring. Seeds sown in a heated greenhouse in August or September produce plants which will bloom profusely in the following year. Every owner of a greenhouse must grow the lovely Butterfly Flowers. He must not think that because the botanical name is somewhat long and difficult the plant itself is forbidding. Long, hard names seem to cling to the Butterfly Flower. Thus, one of the prettiest of the older kinds is called papilionaceus, while the magnificent new sort which has charmed all lovers of this delightful annual is called *Schizanthus Wisetonensis*. It is tough, certainly, but the plant would be grown if a dozen more names equally formidable were tacked on to it. Coming readily from seed, charming in colour, neat in habit with a little pinching, so free in blooming that the plants are perfect pyramids of blossom, it is one of the real gems of the floral world. The normal soil suits it to admiration.

Solanum (*Winter Cherry*).—The flowers of this plant are of little beauty, and it would not be grown much were it not for its bright orange berries, which form freely, and hang most of the winter. The species *capsicastrum* is the one to order from the seedsman, and it will be found very easy to manage. It not only comes readily from seed, but also from cuttings, which may be struck from portions of young shoots when the plants start growing after being cut back, which is done when the berries begin to shrivel. The cuttings had better be given bottom heat to insure their rooting quickly. The plants will be all right in a cold frame,

or even planted in the garden, during the summer. Beyond watering, the only attention needed is to keep them free from green-fly, which is very partial to them. The normal mixture will suit. There are several other attractive *Solanums* beside the Winter Cherry, notably *jasminoides* (Jasmine-like), a summer-flowering greenhouse climber with blue and white flowers; *Wendlandi*, a summer-flowering climber for the intermediate house with blue flowers; and *Worsleyi*, which bears white flowers in summer, followed by red, egg-shaped fruits. They will all do in the normal mixture.

Sparmannia africana.—Without being precisely a popular plant, or possessed of any striking qualities, this yet enjoys a very fair measure of favour. It is uncommon in appearance, it grows freely into quite large, shrub-like dimensions, and it blooms in winter in a greenhouse. These are claims not without weight. The flowers are white, with prominent, coloured stamens, and they are borne in large clusters. Cuttings root freely in spring if given a little bottom heat and air is excluded. The normal soil suits.



A, clump of *Spiraea* for planting; B, stems cut off at this point when flowers, C, and leaves and stems have faded.

Spiraea japonica.—A plant of many names. At one time the botanists called it *Hoteia japonica*, now they have decided that it shall be *Astilbe japonica*. We adhere to the name by which it is almost universally known among trade and private cultivators. The *Spiraea* is one of the plants which bulb-dealers supply in autumn, although it is not, of course, a bulb. They offer what are known as “clumps”—masses of roots and earth compacted together. These are put into pots large enough to admit of some good soil (normal mixture) being rammed in, and just covered. They will flower in spring in an ordinary greenhouse temperature, but growers often push them forward in gentle heat.

The long, graceful plumes of white inflorescence are almost too well known to need any description. They are valuable for cutting. Well-bloomed plants may be placed in room windows. They are thirsty plants, and must have abundance of water. In their case the plan of standing the pot in a saucer of water is permissible, especially if they have to be left unattended for some time. It may be added that the saucer plan cannot be recommended for general adoption, although it is much—too much—practised by amateurs. The roots of the *Spiraeas* may be planted out in moist, rich soil in spring, and lifted again in early autumn.

Stephanotis.—The pure white, deliciously perfumed *Stephanotis floribunda* is a great favourite with every lover of flowers, although everybody cannot grow it, owing to the fact that it needs the temperature of an intermediate or stove house. Gardeners generally grow it for rambling along the roof, and keep a careful eye upon it to see that it does not get covered with mealy-bug (see Insects), which often makes untended plants quite filthy. The *Stephanotis* loves warmth at all times, and warmth in combination with abundance of atmospheric moisture in summer. It is a mistake to allow it to become crowded with shoots, as not only is it then more difficult to cleanse, but the flowers are not so good. It likes a good admixture of peat in the compost. Propagation is effected by inserting cuttings of side shoots in bottom heat in spring, and excluding the air from them.

Stocks.—The greenhouse lover must not overlook the *Stocks* because they are generally grown out of doors. Apart from the fact that the *Ten-weeks* make charming pot plants, and are well adapted for unheated greenhouses, owing to their flowering in a few weeks from seed sown in spring, he must remember that there is a class almost exclusively grown in pots. These are called *Intermediates*, and most charming they are. They are treated as annuals or biennials, in the former case being sown in spring for



A WINTER FLOWERING CARNATION
By E. Fortescue Brickdale

autumn blooming, and in the latter in summer for flowering the following spring. Several colours are obtainable. They succeed with the normal soil and treatment. The East Lothian is another fine strain of pot Stocks.

Streptocarpus.—This is an example of an old plant taken in hand by hybridisers and improved so much as to become practically a new flower. It is a most charming plant, bearing abundance of attractive, tubular flowers, which embrace many pleasing shades of lavender, grey, blue, lilac, and mauve. In the newest forms the size of the flowers has grown so much that the *Streptocarpus* promises to rival the *Gloxinia* in a few years' time. The foliage is handsome too. It may be grown in a greenhouse, but it is often given a warmer structure in order to get earlier bloom. It comes from seed readily enough, and may have the normal treatment. Seed may be sown in spring for giving strong flowering plants the following year. The plants may also be propagated by leaf cuttings, in the same way as some of the *Begonias*.

Torenia.—The lovely little *Torenia*s are not half enough grown by owners of hothouses, considering that they are easily raised from seed. The beautiful violet species *Fournieri*, and the equally pretty yellow *flava*, or *Bailloni* as it is often called by seedsmen, are real gems, bearing their exquisite flowers in profusion. The latter species is often grown in baskets, to which purpose its pendulous habit lends itself. The seeds may be sown in spring, and given ordinary treatment, while the normal soil will do quite well, although some peat may be added with advantage if available.

Tulips.—See Bulb section.

The foregoing notes do not include all the plants worth growing in glass-houses—to do that would be to greatly exceed the space available—but they comprise the most important, and will serve to show that there is abundance of material at the service of cultivators.

WINDOW AND ROOM PLANTS

THE cultivation of beautiful flowers in windows and rooms is one of those delightful pursuits which appeal to all classes. The owner of a dwelling loves to see it embellished with flowers, however humble it may be. He or she (for the sexes take an equal interest in this phase of plant culture) delights in decorating the windows. As a rule, the town amateur gardener grows his plants on the outside sill, and the countryman within the room. One does not often see the interior of a town window packed with plants. The main reason for this is that in towns every inch of house space is utilised. If a town workman has a spare room he promptly lets it, in order to help himself out with his heavy rent. The countryman, on the other hand, always likes to have a spare room, which, however small the dwelling, is rarely used. His little parlour is generally a sacrosanct institution, only to be occupied on State occasions. Truth to state, it generally smells very musty, from want of ventilation and use. If you tried to open the window, you would probably find that it was fixed too firmly in its frame to be moved. But the chances are that you would never be able to get near enough to the window to make an attempt at ventilation, because of the huge barrier in the form of a plant-stand.

One cannot very well condemn Hodge for cultivating plants inside his windows, and advise him to grow them on the sill; in the first place, because the cultivation of room plants is beneficial; and in the second, because he has no sill. But it is certainly desirable to expostulate gently when a window is blocked. That is not good either for the plants or Hodge, not to speak of Mrs. Hodge and the junior Hodges.

We have said that the cultivation of room plants is beneficial, and in this connection it may be well to say a word on the influence of plants on health. The budding student will tell you that the animal world inhales oxygen, and exhales carbonic acid, thus vitiating the air; but that plants inhale carbonic acid, and build up the carbon into their system. So far good, the plant restores nature's balance by taking from the air the impure substance which the animal has poured into it. But the budding student goes further; he tells you that the plant's functions are reversed at night, and consequently, that while a collection of plants in a room is healthy during the day, it is unhealthy after nightfall. If this were strictly correct it would be a somewhat serious matter, for it would show that plants are a source of danger in bedrooms, and must certainly be kept out of the rooms of invalids. But it is not entirely accurate. The change in the functions of the plant ought rather to be described as suspension than reversal. Certainly, so far as respiratory action is concerned, the presence of a plant or two in a bedroom cannot be regarded as inimical to the health of human beings; and one gas-jet with an ill-fitting burner, still more one stuffed chimney, or one window that will not open, will do far more harm. Any one who has the least fear of evil consequences, yet does not like to discard his plants, may rest assured that if he will remove the stuffing from the chimney, and keep his bedroom window open all night, he will never suffer from the respiratory processes of plants.

There is, however, another matter to be considered, and that is the perfume of strongly scented flowers. This certainly has a deleterious effect on some persons, even when they are in health. Here the "personal equation" comes in. There are instances on record of a brave soldier trembling violently merely because a cat came near him. One person will enjoy the odour of a Hyacinth; another will be overcome by it. Experience will soon teach valuable lessons on this matter. Strong-smelling flowers must

not be kept in a room, especially in a sick-room, if they trouble the occupant; on the other hand, they should not be expelled without cause, for their fragrance and cheerful appearance may do real good by raising the spirits of the invalid.

Now, what about the other side of the question—the effects on the plants of being kept in a room? They have to be considered also. A great many plants will remain in health for months, and even years, in a light, airy room, that would become unhealthy in a week in a dark, stuffy one. Plants may serve a real purpose in rooms by indicating, from their condition, the purity or impurity of the air. There are one or two plants, notably the *Aspidistra*, which will stand almost anything—bad air, draughts, alternations of heat and cold, neglect in watering—but the majority will not. Most plants do badly in rooms lit by open gas-burners if the window is not kept open at night, as it always should be. Things are not so bad where good incandescent burners are used. Oil lamps, too, are less deleterious. Even delicate, susceptible plants may be kept fairly healthy in artificially lighted rooms if they are stood in a position below the level of the illuminant, and if the window is kept open. The latter point cannot be too often pressed home. Ventilation is good both for human beings and plants. Foul air is more dangerous than a draught, although the latter should be avoided, as it may be. If the window is only open to the extent of about an inch a great effect is exercised upon the air of the room, especially if there is an open chimney, with or without a fire.

Success in the cultivation of room plants turns partly upon the choice of material, and partly upon care in ventilating and watering. It is not wise to choose very tender plants, because rooms, however warm during the day, are often cold at night. It is not prudent to rely upon ferns, unless they be grown in a case, because the air is likely to be too dry for them. If a tender plant is grown it should be removed from the neighbourhood of a window when



the family retires to rest, and in cold weather covered with several thicknesses of newspaper. Should it happen to get touched by frost it should not be stood near the fire, or hurried away to a hothouse, but should be stood in a cool, shady place, and sprinkled with cold water. This will save it, if anything will.

Let us draw up a list of plants which will thrive in rooms, with proper care and attention, putting them in two classes—plants desirable owing to the possession of handsome foliage, and plants which have beautiful flowers.

FOLIAGE PLANTS

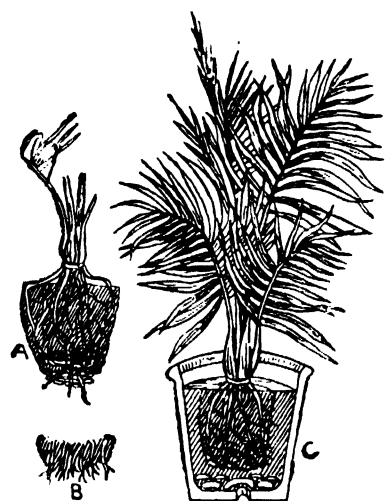
<i>Palms</i> .— <i>Areca lutescens</i> .	* <i>Geonoma gracilis</i> .	<i>Phoenix reclinata</i> .
<i>Kentia Forsteriana</i> .	* <i>Latania borbonica</i> .	* <i>Scaforthia elegans</i> .
<i>Cocos Weddelliana</i> .		

* These three might be chosen if six were too many.

Palms may be maintained in health for years in living-rooms, even if gas is burned, with ordinary care and attention. They should be kept in or near the window, in order that they may get plenty of light; being turned occasionally, to bring a different side towards the light. A compost of three parts fibrous loam, one part each of leaf-mould and decayed manure, and a tenth of coarse, washed sand will suit them. They should be watered when the pot rings hollow under the knuckles, and at no other time. During mild showers they should be stood out of doors for an hour or two, as the rain will cleanse and freshen them. An occasional sponging with soft, tepid water will also do them good. This attention to the foliage is of great benefit to palms, and a most important factor in keeping them in health. They will not grow fast, nor is it desirable that they should. Repotting once a year will be ample, and this may be done in spring. When they have got to the largest convenient size of pot, top-dressing may be substituted for repotting. The plant may be

turned out of the pot, the outer casing of soil crumbled away, the drainage rearranged, and the plant replaced in the pot, fresh earth being rammed down the sides, and packed on the top. Neither in top-dressing nor repotting should the pot be filled quite full; an inch of space must be left for water—two inches in the case of a large pot. It is almost essential that the pots should be stood in saucers of water, in order to prevent the mess that would be made by water escaping through the drainage at

every watering, but the water should not be allowed to rest in the saucers all day, except in summer; and even then periodical emptyings will have to be resorted to, so as to avoid an overflow. This question of providing for superfluous water is a drawback to window plants, but it is unavoidable, unless the grower is prepared to carry the plants out of the room every time they are watered.



POTTING PALMS

- A, *Phoenix reclinata* turned out of pot;
B, crotches and interlacing removed;
C, plant repotted.

Some amateurs affect to be able to perceive great virtue in the use of tea-leaves on palms and other room plants, but it is not clear that they have any special virtue. An ounce of superphos-

phate to the gallon of water, applied once a week or so, or a pinch of one of the advertised fertilisers spread on the surface and watered in, will do far more good.

Palms are propagated by seeds, but it is a slow business, except when abundance of bottom heat and moisture can be provided, and is best left to nurserymen and market growers who require very large quantities of plants. Young palms can be bought very cheaply indeed.

Ferns.—Every grower of room plants likes to have a few ferns. The plants have a grace and charm that even palms do

not possess. We will name a few species that will thrive in rooms with care. First we will name two exotic ferns:—

Adiantum cuneatum, the Maidenhair.

Pteris serrulata cristata, the Crested Ribbon Fern.

We will not say that the beautiful Maidenhair is an easy plant to manage successfully in a room, for it is not. It will not thrive in a room that is alternately hot and cold, is lit by open gas-burners, and is ill-ventilated. At the same time, we know of plants which have remained in excellent condition for several years in rooms. They were never subjected to cold, cutting draughts, but on the other hand they were not in gas-poisoned air. Great care in watering is necessary, and the plants must not be allowed to get frozen.

The Ribbon Fern does very well in a room, with care. It is charming in a small state for dining-tables, or for grouping with vases of cut flowers on occasional tables.

Any of the following British ferns may be tried in a room:—

Adiantum capillus-veneris, the British Maidenhair.

Asplenium marinum, the Sea Spleenwort.

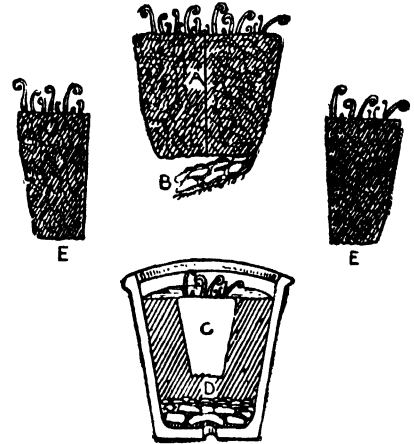
Athyrium filix-foemina, the lady fern.

Lastrea filix-mas, the male fern.

Onoclea sensibilis.

Polystichum angulare proliferum, a shield fern.

Scolopendrium vulgare, the Hart's-tongue.



DIVIDING AND REPOTTING
MAIDENHAIR FERNS

A shows where to divide the ball of roots; B shows the corks being removed; C shows the half of ball of roots potted in compost D; E, E, two halves of ball of roots and soil.

The best time for repotting ferns is the spring. The compost recommended for palms may be altered to the extent of reducing the quantity of loam by one-half, and substituting peat. A very good time to repot is when the new fronds are seen to be moving.

The procedure may be the same as for palms, and top-dressing may be substituted for repotting if more convenient.

If a Maidenhair should fall into ill-health it is advisable to cut it hard back, and let it break again.

Ferns are propagated by spores as a rule, which are gathered from the fronds, and sown like seeds, but the process is slow, and young plants can be bought very cheaply. Maidenhairs can

be increased by division, which is best effected when growth starts in spring. They should be cut boldly through with a strong, sharp knife.



ASPIDISTRA LURIDA VARIEGATA

A, side shoot held in position by peg; B, side shoot not needing such support; C, result in due course—a fine specimen; D shows the flower of the Aspidistra.

The Aspidistra.—The Parlour Palm, as *Aspidistra lurida* and its variegated form are often called, is not a true palm. It is one of the most valuable of house plants, because it will thrive under conditions that would lead to the speedy demise of most plants. It will thrive for a considerable period in a draughty passage. Of course, draughts are not good for it, and if they have their way for a long time they will tell their inevitable tale; but it is as

well to know of a plant that does not succumb quickly to unfavourable circumstances.

Most people prefer the variegated Aspidistra to the plain green, and are generally disconsolate when a variegated plant loses its silvery patches. They should learn that this is generally due to providing too rich a soil. The more luxuriant the growth, the greater the likelihood of a preponderance of green. Plain loam and sand will suffice; manure and leaf-mould should both be avoided.

The transference to the open air during showers, the sponging



CHINESE PRIMULA
By Francis G. James

of the leaves, and the careful watering are as good for *Aspidistras* as they are for palms. The plant is of no value for its flowers, but it is interesting to know that these appear in an unusual way. They push up from the root-stock, and lie on the surface of the soil.

The India-rubber Plant.—This is really not a good room plant, because draughts, close air, and alternations of temperature cause its lower leaves to turn yellow and fall; when this happens the plant is the reverse of ornamental. But with the avoidance of draughts, and very careful watering, success is possible. The palm compost and general treatment will suit *Ficus elastica*.

We have known a skilful man dwarf a tall India-rubber Plant, the base of which was bare of leaves, very cleverly. It was done by cutting a nick in the stem, and binding moss round it, which was kept moist until rooting took place, when the upper part was cut away and potted. We will not promise success in this operation,

however, unless a moist, warm temperature is available; nor will we in striking cuttings of short pieces of stem, each with a leaf attached, although experienced propagators can strike them with plenty of moist bottom heat.

Rex Begonias.—The invaluable *Begonia* genus gives us a useful foliage plant in *Begonia Rex*, and a beautiful flowering one in *Weltoniensis*, a fibrous-rooted species with pink blossoms. *Begonia Rex* has handsome marbled leaves, and a healthy plant looks remarkably well in a window. The flowering species is best brought into bloom in a warm greenhouse, and then moved to the room window, where it will retain its beauty for several



A, cutting of *Ficus elastica* prepared for insertion; B, B, hot-water pipes through a frame; C, cuttings in pots plunged in cocoa-nut fibre D.

weeks. Both plants will thrive in the compost recommended for palms if they are carefully watered. Begonia Rex is propagated by taking a mature leaf, nicking the midrib, and laying it on the surface of the soil in a pot or box: *B. Weltoniensis* by cuttings.

The Parlour Fig (Aralia Sieboldii).—This plant (now called *Fatsia* by botanists, who have abandoned the familiar name of *Aralia*) has broad, deeply cut foliage, with very thick leaf-stalks. It will keep healthy in a room for a long time if carefully watered. It will not endure draughts like an *Aspidistra*.

BERRIED PLANTS

There are two berry-bearing plants admirably adapted for room decoration, namely, *Ardisia crenata* (or *crenulata*) and the Winter Cherry (*Solanum capsicastrum*). The former, although little known, is the better of the two, so far as endurance is concerned at all events. Its berries are much smaller than those of the *Solanum*, and are darker in colour. They hang on the plants for many months, and a plant will retain its beauty in a room for more than half a year if it is properly watered, and the room ventilated. The *Ardisia* will thrive in the palm compost. It may be propagated by cuttings, which may be struck in bottom heat in summer. Fairly firm wood should be selected.

FLOWERING PLANTS

The number of flowering plants available for rooms turns on whether there is a glass-house or not. The owner of a greenhouse will be constantly bringing nice plants that are just beginning to bloom into the rooms. They may be plants that would not thrive in a dwelling-house all the year round, but are quite suitable for embellishing it for a few weeks. It is an immense advantage to have a glass structure of some kind, because with its aid a succession of plants can be had the greater part of the year.

Bulbs will be valuable in the winter. They may be grown in water, in pots of earth, or in vases of peat-moss litter, as pointed out in our Bulb section. White Roman Hyacinths must be particularly borne in mind, because they are so beautiful both for the dinner-table and the window. With the aid of a warm greenhouse, flowers may be had on the Christmas dinner-table. Of course, these and other Hyacinths may be flowered in rooms without the aid of any glass whatever, as they can be brought straight from the plunging-bed to the house; the bloom is later, that is all. If Hyacinths are grown in glasses, they will of course pass a few weeks in a dark cupboard before being put in the window.

The lover of perfumed flowers will make a special effort to have a few pots of Freesias coming on in succession. One pot will suffice to fill a fair-sized room with delicious odour.

The beautiful white Arum Lily will not be overlooked. This, as we saw in another chapter, may be grown in the garden during the summer, and potted up towards the end of September. If it is kept in a pot throughout the year care should be taken to give it abundance of water, as it is a semi-aquatic plant, and soon suffers from drought. There is no need to keep it in the house all the summer through. It may be stood out of doors when it ceases flowering. That it is a grand room plant is proved by the sight of splendid old plants, which bloom freely every year. The Godfrey is a splendid variety.

Early Tulips, and Daffodils of the Trumpet and Chalice sections, are very useful for rooms. The Duc Van Thol Tulips will give very early flowers; and of the Narcissi, obvallaris (Tenby Daffodil), Golden Spur, and Henry Irving will be among the first in flower.

The Scarborough Lily (*Vallota purpurea*), which is also referred to under Bulbs, is a bright and useful room plant. Its colour is very brilliant.

One of the best of general flowering plants for rooms is assuredly the *Clivia*, which used to be known by the longer name of *Imantophyllum*. Visitors to Holland in winter and spring will observe how fond the Dutch are of this as a window plant. In passing through a town of any size one may see it in almost every one of the neat, clean, smart houses. It occupies the post of honour in the window of the main room looking on the street, and presents a very cheerful appearance, with its bright orange flowers. We dealt with the culture of the plant in our Greenhouse section.

Of course the Zonal *Pelargonium* looms largely in our tale of window plants. It is so free a grower, so profuse a bloomer, so gay, so accommodating, that it is in great demand. In collections of window plants at the flower shows "Zonals" are nearly always prominent—too much so sometimes, for a judge who is making the awards in a class for three or six window plants does not care to see the collection made up entirely of "Geraniums." He likes to see at least two kinds of plant, and is better satisfied with three. As we saw in our Greenhouse section, there are many beautiful varieties, and those who have a warm structure can have winter-blooming plants by striking cuttings in spring and picking off the flower-buds until autumn. The plants could not be expected to remain in health and bloom long in an ordinary room in winter, because it would be too cold at night. Nice autumn bloom can be obtained by potting up some sturdy plants out of the flower-beds.

As a variant on Zonals, there are Ivy-leaved and scented-leaved "Geraniums." Many cottagers get nice window plants by training an Ivy-leaved "Geranium" on a home-made framework of laths, much the same as they use for Musk. The last-named plant is often seen in the windows of country cottages, and is both pretty and sweet.

Marguerites (varieties of *Chrysanthemum frutescens*) are stock



BEGONIA GLOIRE DE LORRAINE

By A. Fairfax Muckley

favourites for windows, both indoors and out. Their strong points are their free and persistent blooming and their attractive foliage. They do not, it is true, give us a great range of colours, being either white or yellow; but that is not a serious drawback, as we can get colour in other things. Marguerites come readily from cuttings, thrive in ordinary potting compost, and are easy to keep healthy so long as the leaf-mining maggot can be kept at bay. (See Greenhouse section.)

Plants in Vases.—Room gardening assumed a new phase with the trial of peat-moss fibre in china vases for bulbs and other plants. It proved to be entirely successful. Bulbs do particularly well in this substance. It is purchased in a dry state in autumn with the bulbs, is moistened, and is made firm, but not absolutely hard, in the receptacles, which need not be at all expensive. The vases are not put in a dark place like bulbs in glasses, because the bulbs are covered with fibre, and top growth does not push in advance of the roots. In autumn the fibre is hardly likely to get quite dry, but should it do so it ought to be moistened. It is desirable that the store be frost-proof, but the bulbs will endure a little hardship. When they are in full growth water will be required more frequently. Any excess must be got rid of by gently turning the vase on its side, as the vases are not perforated, and there is no drainage. Care should be taken to avoid filling the vases quite full of fibre, as if that were done particles would be constantly falling over and making a mess. If this is guarded against vases will be found perfectly clean.

Bulbs may also be grown successfully in bowls filled with clean pebbles and water. Polyanthus Narcissi do particularly well. They may be treated in the same way as Hyacinths in glasses—that is, put into a dark cupboard for six or eight weeks, and then placed in the window.

Once upon a time Wardian cases were popular for the windows

of rooms, but they are not much in use nowadays. The rise of vase and bowl cultivation has doubtless had a great deal to do with their relegation. Small, separate receptacles, which can be moved from place to place, and put on a dinner-table during meals, are preferred to a large fixture.

CUT FLOWERS

The use of cut flowers for room decoration spreads from year to year, and it is earnestly to be hoped that it will continue to do so. Ultra-sensitive people raise objections to the cutting of flowers. They "like to see the poor things on the plants." Certainly, we all like to see flowers on the plants; that is what we grow most plants for. But we have got to remember that the constant cutting of flowers helps plants to grow and bloom, and therefore, that the latter are benefited by the practice. If flowers are left on plants they run to seed, and blooming ceases.

The subject of cut flowers is too large a one to be dealt with fully. Adequate treatment would mean a volume. We must be satisfied with a few brief hints:—

(1) Cut all flowers while young and fresh.

(2) Cut them with long stalks, because then they can be arranged lightly.

(3) Do not, as a rule, use many different kinds of flowers in one vase.

(4) Make a practice of arranging flowers with their own foliage.

(5) Cut a short piece off the bottom of the stem every two or three days.

(6) To revive drooping flowers, put them in hot water containing a little salt.

Cut flowers adorn rooms in a delightful way, and exercise a sweetening and refining influence.

WINDOW-BOXES

Reference was made to window-boxes in the Bulb section, and it is unnecessary to repeat the details; but it has to be pointed out that bulbs adorn window-boxes in spring only, and that when they are over provision must be made for the summer display.

In passing, it may be noted that some people prefer to have plants in pots on their window-sills, because of the facility for making changes. There is no real objection to this, but the grower must remember two things: the first, that he must place blocks or a strip of wood along sloping sills to raise the front of the pots and bring them level, otherwise the plants cannot be properly watered; the second, that a support will be required to prevent their being blown off. A framework to fit the window can easily be made, and if it is faced with virgin cork the pots will be hidden.

In the case of boxes, they must be made to fit the sill, but there is no objection to their overhanging a little in front, provided that there is no fear of overbalancing. There must be a strip at each end, thickened in front, to keep the box clear of the sill, and level. A number of holes should be bored or burnt in the bottom to permit of water escaping. These holes may be covered with pieces of broken flower-pot.

When bulbs are used in window-boxes it is a good plan to associate coloured Primroses with them, as the latter bloom later than most bulbs, and maintain the display. They are beautiful



CAMPANULA ISOPHYLLA ALBA FOR
POTS OR BASKETS

A, A, sand at base of cuttings; B, cuttings inserted through sandy surface; C, a suitable cutting—basal shoot; D, plant in flower in pot. It quickly grows to this stage and condition.

flowers, and will be at their best from the middle of April to the middle of May.

All the popular, free-flowering plants, such as Zonal and Ivy-leaved Pelargoniums, Fuchsias, Marguerites, Begonias, China Asters, *Campanula isophylla*, and Creeping Jenny will be available for summer bloom. Crowding in a great many kinds is inadvisable, as the plants spoil each other.

The boxes can be cleared in November and planted with bulbs or small conifers.

END OF VOL. I

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